

PUBPOL 301: Truth, Evidence, and Public Policy Analytics

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Lecture meets: Mondays and Wednesdays, 10-11:20am, Dempsey Hall 002.

Office Hours: Fridays, Noon-1:30pm and by appointment.

Course Website & Email List

Website: <https://canvas.uw.edu/courses/1271041>

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Course Description and Objectives

- "Russian President Vladimir Putin ordered the hacking of the Democratic National Committee servers prior to the 2016 U.S. election."
- "Human activities are causing changes to the global climate."
- "The Seattle Minimum Wage Ordinance caused a loss in jobs for low-skill workers."
- "Repealing Obamacare (the Affordable Care Act) will cause the number of uninsured Americans to rise by 32 million in 10 years."

These statements are either true or false. Yet, knowing with certainty whether something is true or false is sometimes very challenging if not impossible. Sound public policy and governance decisions rely on having *evidence* to support conclusions as well as having an understanding of the extent of certainty (or doubt) regarding the available evidence.

Students in this class will learn how to know when something is likely to be true, and introduces students to research design and scientific methods for examining policy problems. Students learn a broad array of empirical approaches, including qualitative, statistical, experimental, and mixed methods for applied policy analysis. We will explore methods to evaluate i) the origins of policy, ii) the management, implementation, and administration of public programs, and iii) the intended and unintended impacts of public policies on people and institutions. We cover the rapidly changing role of information, the use and limitations of administrative data for policy research, and the advantages and the limitations of data scraping and data mining in the analysis and formation of policy. Students learn how these methods are used to conduct benefit-cost analyses, evaluate programs, and improve forecasting accuracy.

The kind of evidence sought by this class is not truth that is "self-evident", as described in the Declaration of Independence:

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. — That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, — That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation

on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness." (emphasis added)

Rather, the kind of evidence we seek is as described by Representative Abraham Lincoln in his speech in the House of Representatives, June 20, 1848:

"The true rule, in determining to embrace or reject anything, is not whether it have any evil in it, but whether it have more of evil than of good. There are few things wholly evil or wholly good. Almost everything, especially of government policy, is an inseparable compound of the two; so that our best judgment of the preponderance between them is continually demanded. On this principle the President, his friends, and the world generally act on most subjects. Why not apply it, then, upon this question? Why, as to improvements, magnify the evil, and stoutly refuse to see any good in them?

...

The surplus--that which is produced in one place to be consumed in another; the capacity of each locality for producing a greater surplus; the natural means of transportation, and their susceptibility of improvement; the hindrances, delays, and losses of life and property during transportation, and the causes of each, **would be among the most valuable statistics in this connection.** From these it would readily appear where a given amount of expenditure would do the most good. **These statistics might be equally accessible, as they would be equally useful, to both the nation and the States.**" (emphasis added)

Our objective is to introduce and develop the main elements of research design and to introduce multiple regression techniques for analyzing statistical data. With the advent of ubiquitous "big data" and growing interests in utilizing new computing technologies in conjunction with an ever increasing array of data sources and types, we emphasize the need for researchers to distinguish between the goals of hypothesis testing and prediction at all stages of a research investigation: from problem definition, to research approach, to data collection, through statistical analysis and interpretation.

Learning Objectives

By the end of this course, students will be able to:

- be critical consumers of research studies that bear on public policy and governance, develop tacit knowledge, and assess the face validity of studies;
- understand how theory and evidence guides contemporary policy and governance decisions;
- know how to conduct literature reviews, study meta analyses, and generate hypotheses;
- know how qualitative methods can be used and implemented to generate hypotheses;
- understand the internal and external validity of social experiments, and know the strengths and weaknesses of quasi-experimental designs;
- conduct and interpret simple multivariate regressions and use statistical programming to estimate coefficients;
- understand the use of prediction in public policy and governance and how the goals of prediction may differ from hypothesis testing; and
- understand the role of machine learning in public policy and governance decision-making.

Class Meetings

Class meetings will include lectures, video clips, demonstrations, exercises and guest speakers. Questions and contributing to class discussions are strongly encouraged. Students are expected to attend every class. *Lecture will expand on course readings by covering some topics in detail while also introducing new concepts and research not discussed in the readings.* Because lecture and discussion sections will have only partial overlap with readings, class attendance is necessary for acquiring course content (and doing well on exams).

I will use [Panopto](#) to record lectures. These videotapes will be available after class on Canvas. These recordings are best used as a *supplement* rather than a *substitute* for class attendance. They can be helpful in reviewing material for the final exam, and will allow you to re-listen to content that was confusing. Note: that these recordings can be played in a slow motion (which is useful for non-native English speakers) or in fast motion, which is useful for students wanting a quick recap of the material.

Community Conversation Norms

At the Evans School, we value the richness of our differences and how they can greatly enhance our conversations and learning. As a professional school, we also have a responsibility to communicate with each other—inside and outside of the classroom—in a manner consistent with conduct in today's increasingly diverse places of work. We hold ourselves individually and collectively responsible for our communication by:

- **Listening** carefully and respectfully
- **Sharing** and teaching each other generously
- **Clarifying** the intent and impact of our comments
- **Giving and receiving** feedback in a “relationship-building” manner
- **Working** together to expand our knowledge by using high standards for evidence and analysis

Tips to Do Well in Class

- **Do the reading *before* you come to class.** Hearing the material after having read it will help things make sense to you. I plan class exercises and lecture with the assumption that you've done the reading.
- **Come to class with questions.** If you do not understand something, ask questions about it in class. Usually, you are not the only one who has the same question.
- **Attend class regularly** and keep up with your assignments.
- **Discuss the material with someone else.** To that end, I recommend you form a study group others to work on problem sets. Set a time regular time to meet. Ask questions among yourselves. Seeing material from the perspectives of others will help you better to formulate your understanding of the material. You should hand in your own work after having reviewed your responses to the problems with your group.
- **Keep an eye out for news on Evidenced-Based Policymaking.** You can do this by:
 - Subscribing to the mailing list of the [Washington State Institute for Public Policy](#).
 - Listening to the “The Weeds” podcasts on [Vox](#).
 - Subscribing to the newsletter of [The Hamilton Project](#).
 - Subscribing to the newsletters of the [Urban Institute](#).

- There are many, many other good sources for news and analysis like these. Seek out sources for truth and evidence and stay informed!

Textbooks

eBook with on-line access:

- *Just Plain Data Analysis: Finding, Presenting, and Interpreting Social Science Data*, Second Edition, 2012, by Gary M. Klass. [eBook Link](#).
- *Methods Matter: Improving Causal Inference in Educational and Social Science Research*, Richard J. Murnane and John B. Willett, 2010. [eBook Link](#).
- *The Elements of Statistical Learning: Data Mining, Inference, and Prediction*, Second Edition, 2009, by Trevor Hastie, Robert Tibshirani, and Jerome Friedman. [eBook Link](#).

Available for purchase or rental on Amazon and assigned chapters available at course reserves.

- *Research Methods for Public Administrators*, 6th ed. Elizabethan O'Sullivan, Gary Rassel, Maureen Berner, Jocelyn DeVance Taliaferro, Routledge, 2017. [Amazon](#).
- *Essential Statistics for Public Managers and Policy Analysts*, 4th Edition, by Evan M Berman and Xiaohu Wang, 2017. [Amazon](#).
- *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*, 2nd Edition, William R. Shadish, Thomas D. Cook, and Donald T. Campbell, 2002. [Amazon](#).

Grading and Requirements

The course requirements include seven homework assignments and a final exam.

Homework Assignments	56% of final grade
Final Exam	44% of final grade

Course Policy on Missed or Late Assignments

Submit all course assignments by Canvas BEFORE lecture. Answers received during or after lecture will not be reviewed or receive credit. If you cannot hand in the homework on time, I recommend that you complete it anyway so that you learn the material.

If an emergency prevents you from taking the final exam, you must contact me by phone or by email and provide documentation. Generally, an "emergency" means sickness or injury and does not mean a work commitment.

Student Academic Conduct

Students at the Evans School are expected to maintain the highest standards of academic conduct, and, of course, most do. Cheating harms the person cheating, as it deprives them of the opportunity to learn the material. It also harms honest students who are frustrated by the unfairness of cheating that goes undetected and therefore unpunished.

Academic misconduct occurs if you present as your own work something that you did not do. It is also considered academic misconduct if you help someone else present work that is not his or her own.

Plagiarism

One of the most common forms of cheating is *plagiarism*, which is using another's words or ideas without proper citation. When students plagiarize, they usually do so in one of the following six ways:

1. Using another writer's words without proper citation.
2. Using another writer's ideas without proper citation.
3. Citing your source but reproducing the exact words of a printed source without quotation marks.
4. Borrowing the structure of another author's phrases or sentences without crediting the author from whom it came.
5. Borrowing all or part of another student's paper or using someone else's outline to write your own paper.
6. Using a paper writing "service" or having a friend write the paper for you.

Exams

Another common form of cheating involves exams. The following will all be considered violations of the student conduct code:

- Copying from someone else's exam, or allowing another student to copy from your exam;
- Aiding another student during an exam where collaboration is prohibited, including talking, signs, gestures, or sharing notes;
- Using notes (unless expressly allowed by the teacher, in which case notes must follow their specifications);
- Using any electronic device such as a tablet, laptop, or mobile phone unless expressly permitted by the instructor;
- Altering an exam for re-grading;
- Getting an advance copy of the examination;
- Using a surrogate test-taker;
- Working together on a take-home exam when an instructor forbids collaboration;
- Deliberately delaying turning in a timed class exam; such a delay would unfairly give that student extra time and will be considered a form of cheating.

Lying

Lying encompasses the following: the willful and knowledgeable telling of an untruth, as well as any form of deceit, attempted deceit, or fraud in an oral or written statement relating to academic work. This includes, but is not limited to, the lying to administration and faculty members, and falsifying any university document by mutilation, addition, or deletion.

What happens if there is a suspected violation?

It is the responsibility of the entire Evans School community to uphold its academic standards and integrity. It is the Evans School's policy that instructors maintain discretion over whether and how any suspected academic misconduct should be reflected in the grade for that assignment, exam, or for the course. This may include a zero grade. Students who disagree with the instructors' assessment should follow the University's normal grade appeal process. Proven academic misconduct as outlined above could also result in disciplinary action from the University. In addition, instructors who suspect misconduct will report the misconduct to the Evans School's Assistant Dean of Students and the Associate Dean for Academic Affairs.

Appeal Procedures

Students in the Evans School's undergraduate program have the right to appeal grades and academic probation and dismissal decisions according to the process outlined in the UW's Student Academic Grievance Procedures and Student Conduct Code on Appeals. Students who want to appeal a grade must first discuss the matter with the relevant faculty member. Students who 1) are not able to resolve a grade appeal request with the relevant faculty member, 2) have been placed on probation, or 3) have been dismissed from the major, and who believe that some facts or documentation have been overlooked or misinterpreted may request reconsideration of the grade or decision by writing a letter to the Assistant Dean of Students and the Associate Dean of Academic Affairs within 30 days of the initial decision. The Assistant Dean of Students and the Associate Dean for Academic Affairs, may bring the matter to the Dean at their discretion. If the matter cannot be resolved with the Evans School, then the student may pursue the formal UW appeals process.

Schedule

Please let me know if a religious observance will affect your ability to participate and complete assignments in this schedule – see <http://www.washington.edu/students/reg/religcal.html#win19>

Week 1 (Jan. 7, 9): Policy and Governance as a Science

- Content:
 - Examples of theories that guide contemporary policy and governance decisions
 - From hypothesis to theory and back again
- Readings:
 - "When Truth Becomes a Commodity", Daniel T. Rodgers, [The Chronicle of Higher Education](#), January 15, 2017
 - "Know-Nothing Nation", Nathan Pippenger, [The Chronicle of Higher Education](#), January 15, 2017
 - Berman and Wang, Chapter 1 (on course reserves and [Canvas](#))
 - O'Sullivan, Rassel, Berner, and Taliaferro (2017), Chapter 1 (on course reserves and [Canvas](#))

Week 2 (Jan. 14, 16): Reading the Literature and Hypothesis Generation

- Content:
 - Literature Reviews
 - Meta Analyses
- *Note: HW 1 due on January 16*
- Readings:
 - O'Sullivan, Rassel, Berner, and Taliaferro (2017), Chapter 2 (on course reserves)
 - "[Doing a Literature Review](#)" by Jeffrey W. Knopf, *PS*, January 2006
 - "Introducing: Meta-Analysis for Public Management and Policy" by Evan J. Ringquist and Mary R. Anderson and "Conceptualizing Research and Gathering Studies" by Ringquist in *Meta-Analysis for Public Management and Policy*, Evan Ringquist, 2013. [eBook](#).

Week 3 (Jan. 23 (note: Jan. 21 is MLK Jr. Day): Qualitative Analysis as a Means of Hypothesis Generation

- Content:
 - Surveys, Interviews, and Focus Groups
 - Contacting and Talking to Subjects
 - Human Subjects
- *Note: HW 2 due on January 26, 5pm.*
- Readings:
 - O'Sullivan, Rassel, Berner, and Taliaferro (2017), Chapters 7 & 8 (on course reserves)

Week 4 (Jan. 28, 30): Social Experiments

- Content:
 - How to Test a Hypothesis
 - How to Evaluate Experiments Internal and External Validity
 - Human Subjects
- *Note: HW 3 due on January 30, before lecture.*
- Readings:
 - O'Sullivan, Rassel, Berner, and Taliaferro (2017), Chapter 3 ([on course reserves](#))
 - Murnane and Willett (2010), Chapters 4 & 5. [eBook Link](#).
 - Shadish, Cook, and Campbell (2002), Chapters 1, 8, and 9 ([on course reserves](#))
 - "Assessing Program Impact: Randomized Field Experiments" in *Evaluation: A Systematic Approach*, 7th Edition, by Peter H. Rossi, Mark W. Lipsey, and Howard E. Freeman. [Canvas](#).

Week 5 (Feb. 4, 6): Quasi-Experimental Designs (Introduction Overview)

- Content:
 - Natural Experiments
 - Interrupted-Time Series
 - Difference-in-Differences
 - Regression Discontinuity
 - Instrumental Variables
 - Propensity Score Matching
 - Multivariate Regression
- *Note: HW 4 due on February 6, before lecture.*
- Readings:
 - Berman and Wang, Chapter 2 ([on course reserves](#))
 - Murnane and Willett (2010), Chapter 8. [eBook Link](#).

Weeks 6-8 (Feb. 11, 13, 18, 20, 27 (note: Feb. 25 is Presidents' Day)): Multivariate Regression

- Content:
 - Competing Explanations, Omitted Variable Bias,
 - Statistical Fallacies, Paradoxes, and Threats to Validity
 - Tests of Statistical Significance
- *Note: HW 5 due on February 13, before lecture.*
- *Note: HW 6 due on February 20, before lecture.*
- Readings:
 - Klass, Chapters 3 & 4. [eBook Link](#)
 - Berman and Wang, Chapters 14 & 15 ([on course reserves](#))

Weeks 9-10 (Mar. 4, 6, 11, 13): Prediction and Forecasting

- Content:
 - How the goals of prediction may differ from hypothesis testing
 - Forecasting accuracy
 - Cross-validation
 - Machine Learning
 - Least Angle Regression and LASSO
- *Note: HW 7 due on March 11, before lecture.*
- Readings:
 - Hastie, Tibshirani, and Friedman (2013), Chapters 1, 2, 3 and 7. [eBook Link](#).
 - "Facebook is using AI to try to prevent suicide", Hayley Tsukayama, November 27, 2017, [Washington Post](#).
 - "Suicide prediction technology is revolutionary. It badly needs oversight", Mason Marks, December 20, 2018, [Washington Post](#).

Final Exam (Monday, March 18, 2019, 8:30-10:20am)

- Cumulative
- Closed book, but 2 pages of notes (4 sides) are permitted.
- Bring pencil or pen and 2 pages of notes.