

PubPol 527
Quantitative Methods

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This course is the first in a two-quarter sequence aimed at helping you to become a critical consumer and competent producer of research and statistical analysis.

By the end of this course, you will:

- Gain an understanding of research and statistical analysis as ways to explore, describe, and explain management or policy issues;
- Use descriptive statistics and statistical inference to understand policy or management problems;
- Understand the meaning of analyses using confidence intervals, test statistics, and p-values;
- Recognize the implications of the qualities and quantities of data;
- Demonstrate your ability to manipulate data to produce informative analysis;
- Communicate about statistical results for a non-technical audience.

Our goal is for you to understand enough theory and have enough experience to intelligently use data to arrive at reasonable conclusions. Furthermore, you will be able to digest and critically assess empirical evidence and understand what analysis you need in order to make decisions. Throughout the course, we will examine policy questions and related data in order to learn how to apply analytic techniques.

Texts. The required text for the course is free online text: OpenIntro Statistics:
https://www.openintro.org/stat/textbook.php?stat_book=os

Software. We will be using STATA to complete some class assignments and the policy report. You can access STATA in the Evans computer lab or remotely. [See instructions: <http://evans.uw.edu/technology/evans-school-terminal-server>]

Grading:

Homework assignments (credit for complete and on time)	15%
Quiz 1	20%
Policy Report	
Proposal	15%
Final paper	25%
Final	25%

Some tips about this class:

Keep up with the reading and the homework. You must keep up with the material as later material requires a good understanding of the earlier material. Do the assigned reading *before* you come to class even if you don't understand all of it--hearing the material after you read it will help things make sense to you. Do lots of problems, come to class, and attend the weekly quiz sessions. Active engagement and repeated experience with the material is critical to your learning.

Ask questions. If you do not understand something, ask questions about it in class and in the quiz sessions. Usually, you are not the only one who has the same question.

Study in groups. A good way of learning this material is to discuss it with someone else. We recommend that you form a study group with a regular time to meet. You can ask additional questions, practice articulating your understanding of the material, review your responses to problem sets, and discuss your policy report.

Homework Assignments: The purpose of the homework assignments is to give you practice in applying the concepts. Homework assignments are graded with a check, check minus, or check plus. **No late homework will be accepted.** Try to start the homework as soon as it is available to you. That way, you will have time to ask questions about it before it is due.

Date	Topic	READING
Jan 9	Savvy questions for data consumers; Describing data	<p>Text: Chapter 1: OpenIntro Statistics: https://www.openintro.org/stat/textbook.php?stat_book=os (Links to an external site.)Links to an external site.</p> <p>"Understanding research"</p> <p>"Using Administrative and Survey Data to Build Evidence" (pages 1 to 8, and skim rest)</p> <p>http://fivethirtyeight.com/features/the-polls-missed-trump-we-asked-pollsters-why/</p> <p>Age and race in the US</p> <p>In class: powerpoint</p> <p>Evans conversation norms</p>
Jan 16	<i>Probabilities and Proportions</i>	<p>Text: sections 2.1 and 2.2</p> <p>In class:</p> <ul style="list-style-type: none"> • powerpoint • NCHS, Health, United States, 2015
Jan 23	Discrete Random variables	<p>Text: sections 2.4</p> <p>In class:</p> <ul style="list-style-type: none"> • Powerpoint • Excel sheet of number of kids • Stocks and flows • Pew Research briefing

		<ul style="list-style-type: none"> • 527 midterm 2008.doc • excel sheet for 2008 midterm • 2008 midterm answersheet
Jan 30	Continuous Random Variables and the Normal distribution	Text: Sec 2.5, 3.1 in class: <ul style="list-style-type: none"> • powerpoint • CPS income statistics • World Bank income distribution • Normal distribution calculator
Feb 6	Using statistics; Quiz 1: Covers descriptive statistics and probabilities. One hour	In class: powerpoint
Feb 13	Tools for Samples: Sampling Distributions and Confidence Intervals	Text sections. 4.1, 4.4, 4.2, 5.1, and 6.1 In class: _ <ul style="list-style-type: none"> • powerpoint • Teen tobacco example • Confidence interval summary sheet • CI spreadsheet
Feb 20	Tools for Samples:	Text: secs. 4.3,4.5, 5.2, and 6.5 <ul style="list-style-type: none"> • Powerpoint

	Hypothesis Testing and P Values	<ul style="list-style-type: none"> • Hypothesis testing summary • z and t tables
Feb 27	Tools for Samples: Making Comparisons	<p>5.3, 6.2</p> <p>In class: powerpoint</p>
Mar 6	Research, Hypotheses, and Statistics Cookies	<p>5.4</p> <p>In class:</p> <ul style="list-style-type: none"> • Research Design • Scheduling Study for City of Seattle • Ten-Year Impacts of Burkina Faso's BRIGHT Program • Writing Tips for Quantoids