

<p><b>Public Affairs 527</b> <b>Quantitative Methods</b></p> <p>Winter 2009 Tues. 6:00-8:50 108 Parrington <a href="http://courses.washington.edu/pbaf527m/">http://courses.washington.edu/pbaf527m/</a></p>	<p><b>Marieka Klawitter</b></p> <p>221 Parrington 206.616.1673 <a href="mailto:marieka@u.washington.edu">marieka@u.washington.edu</a></p> <p>Office hours: Tues. 4:00-5:30 and by appt.</p>	<p><b>Crystal Hall</b></p> <p>228 Parrington 206.221.5237 <a href="mailto:hallcc@u.washington.edu">hallcc@u.washington.edu</a></p> <p>Office hours: Thurs. 10-12 and by appt.</p>
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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 *Statistics* (11<sup>th</sup> Ed.) by James T. McClave and Terry Sincich (Upper Saddle River, NJ: Prentice Hall, 2008)

**Software.** We will be using SPSS to complete some class assignments and the policy report. SPSS is available from the University Bookstore Computer Store. You can also use it for free in the computer lab at the Evans school or at the Center for Social Science Research Computation and Research (CSSCR). [ <http://julius.csscr.washington.edu/> ] CSSCR has a help desk that can help you with computer and software-related questions. [Please note: data sets may not move well between different versions of SPSS but generally version after SPSS 13 should work.]

**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 review 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 review 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** because on the due date we'll be handing out an answer key. 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.

**Grading:**

<b>Homework assignments</b> (credit for complete and on time)	15%
<b>Quiz 1</b> (Feb 3 <sup>rd</sup> , in class open book)	15%
<b>Quiz 2</b> (Feb 24 <sup>th</sup> , in class open book)	15%
<b>Policy Report</b> (see last page)	
Proposal	10%
Final paper	25%
<b>Final</b> (take home—open book)	20%

<b>Schedule:</b>	<u>Handed-out</u>	<u>Due</u>
Assignment 1	Jan 6	Jan 20
Assignment 2	Jan 13	Jan 27
Assignment 3	Jan 20	Feb 3
<b>Quiz 1</b>		Feb 3
Assignment 4	Feb 10	Feb 17
<b>Report Proposal</b>		Feb 17
<b>Quiz 2</b>		Feb 24
Assignment 5	Feb 17	Mar 3
<b>Policy Report</b>		Mar 10
<b>Final Exam</b>	Mar 17, 4pm	Mar 18th, 6pm

Date	Topic	DUE	READING
6-Jan	Savvy questions for data consumers; Describing data		MS Ch 1 and 2 (not section 2.8)  <a href="#">"Understanding research"</a>  <a href="#">WorkFirst case A</a>
13-Jan	Probabilities and Proportions		MS Ch 3 (not 3.8, but include 3.9)
20-Jan	Discrete Random variables	HW 1	MS Ch 4.1-4.3 <a href="#">WorkFirst Case C</a> ( <i>Just read the text</i> )
27-Jan	Continuous Random Variables and the Normal distribution	HW 2	MS Ch 5.1-5.3
3-Feb	Using statistics;  <b>Quiz 1:</b> Covers descriptive statistics and probabilities. One hour, open book.	HW 3,	  <a href="#">Example papers</a>
10-Feb	Tools for Samples: Sampling Distributions and Confidence Intervals		MS Ch 6 and 7
17-Feb	Tools for Samples: Hypothesis Testing and P Values	HW 4, project proposal	MS Ch 8.1-8.5
24-Feb	Tools for Samples: Making Comparisons  <b>Quiz 2:</b> Covers normal distributions and sample tools for 1 mean or proportion		MS Ch 9.1-9.4
3-Mar	Research, Hypotheses, and Statistics	HW 5; Initial results for report	
10-Mar	Policy report discussion, Evaluations, and Cookies	Policy Report	
17-Mar	No class this day! Final available 4pm via email (Take home, open book)	Final due: Weds. March 18 <sup>th</sup> 6pm	

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## ***Policy Report***

The purpose of this assignment is to apply the skills you gain from this class to a policy issue. For this project, we'll use data from the 2008 Washington State Population Survey. You and one partner (if you want to work together) will pick a subject, pick a client (real or hypothetical), manipulate the data, and write a memo using the results. You should choose a topic early in the quarter and explore it for the SPSS portions of the homework.

Submit your reports to the drop box at: <https://catalysttools.washington.edu/> Choose UW Net ID, sign in with your UW ID and the 527 drop box should show up for you.

In the 1 page **proposal for your report (due Feb. 17<sup>th</sup>)**, describe the research question that you will test with the data. Explain which variables and comparisons you will use to examine your ideas. Write this proposal as a memo to the client you have chosen for your project.

The **final report (due March 10<sup>th</sup>)** should be 8-10 single-spaced pages in length (including graphics and tables) and demonstrate your understanding of the issues and concepts covered in the class. The report must contain empirical analysis in the form of tables, graphs, and hypothesis tests. The objective is to "translate" statistical information for a policy-maker. Write your report for the client (a non-statistician), but include enough information for a statistician to evaluate what you've done (often in footnotes and appendices). The memo will be graded on content, analytic reasoning, analytic techniques, clarity of writing, and graphical presentation. You're encouraged to make full use of statistical software, word processing, and graphics packages to put your results in an attractive, readable form. [Refer to ***Writing tips for Quantoids*** for important tips.] We will discuss your results in class when the report is due.

### **Required elements of Policy Report:**

- Executive summary (1 page at front of paper):  
*What are your results?*
- Construct a research question:  
*What question will you answer for your client?*
- Describe your data source:  
*What is the source of your evidence?*
- Present your evidence:  
*Translate statistics into meaning*
- Tell client how good this information is (give caveats about data or methods) and how to get better information:  
*Do these data answer the questions?*
- Give your conclusions and policy implications:  
*What should your client do with this information?*

**Example papers** are available at:

<https://courses.washington.edu/pbaf527m/examplepolicyreports.html>