Public Affairs 527C **Quantitative Methods** **Winter 2012** Monday/Wednesday 6-7:20pm Parrington Hall 108	**Instructor:** **Crystal Hall** 321 Parrington Hall 206.221.5237 hallcc@uw.edu Office hours: Monday 3:30-5:30pm and by appt.	**Teaching Assistant:** **Ryan Bodyani** rbodanyi@uw.edu Office hours: Tu 5-8pm W 1:30-4:30pm

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.

My 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.

Text. *Statistics for Business and Economics* (7th Ed). Newbold, Carlson & Thorne (2010) – Available at University Book Store. A copy of the text is on reserve at Odegaard Library.

Software. We will be using SPSS to complete some class assignments and the policy report. A full site-license version of SPSS 19 is available to purchase from the University Bookstore Tech Center for $95.You can also use it in the Evans computer lab.

Course materials will be posted on a Catalyst website:
https://catalyst.uw.edu/workspace/hallcc/27172/

This is a large course in a largely lecture format, however, I nonetheless expect full participation and engagement from all students. We will often break into small groups to work problems in class, and I expect students to voice questions and comments to lecture material as well.

Furthermore, I expect all students to adhere to the **Evans School Community Conversation Norms** in interactions with myself, the TAs and other students:

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

Grading breakdown and assignments

Homeworks: Graded as Check Plus (4.0), Check (3.4) or Check Minus (2.7).

Midterm Exam: In class, with open book and notes on February 1st.

Final Exam: Take home. Handed out Tuesday March 13th at 5pm. Due Wednesday March 14th at 5pm.

Grading:

Homework assignments (credit for complete and on time)	10%
Midterm Exam	30%
Policy Report	30%
Final Exam	30%

Schedule:	Due
Assignment 1	Jan 11
Assignment 2	Jan 23
Assignment 3	Jan 30
Assignment 4	Feb 15
Assignment 5	Feb 29
Midterm Exam	**Feb 1**
Report Proposal	**Feb 8**
Policy Report	**Mar 7**

A note on the readings: Many of the chapters cover topics we will not cover in class. I will send weekly updates specifying which sections to focus on.

Date	Topic	Due	Reading
1/4	Introduction – describing data		
1/9	Intro continued/Intro to Probabilities and proportions		Chapters 1 and 2
1/11	Probabilities and proportions	HW 1	Chapter 3
1/16	**NO CLASS**		
1/18	Discrete and Continuous Random Variables		Chapters 4 and 5
1/23	Discrete and Continuous Random Variables	HW 2	
1/25	Review so far + SPSS		
1/30	Introduction to Sampling distributions	HW 3	Chapter 6 (no appendix)
2/1	MIDTERM EXAM		
2/6	Sampling Distributions and Confidence Intervals		Chapter 7
2/8	Sampling Distributions and Confidence Intervals	Proposal	
2/13	Hypothesis Testing and p Values		Selections from Chapters 8 and 9
2/15	Hypothesis Testing and p Values	HW 4	
2/20	**NO CLASS**		
2/22	Making Comparisons		Selections from Chapter 10
2/27	Research, Hypotheses, and Statistics		
2/29	Using Statistics, continued	HW #5	
3/5	Final policy report issues/discussion		
3/7	Policy report wrap-up	Policy Report	

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 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.

For the policy report, **you must work with a partner**. The pairs submitted in the proposal must be the final pairs for the project.

In the 1 page **proposal for your report** (**due Feb. 8th**), 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 7th)** should contain up to 6 single-spaced pages of text (maximum of 2 additional pages for 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. 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:
  W*hat 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?

Sample papers are available on Catalyst, but be sure to follow the updated length requirements.