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**Statistical Methods for Policy Analysis**

**PUBP 704-003**

**Fall 2006**

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**202-608-6209**

Location: Arlington Campus, Room 242

Thursdays 4:30 – 7:10 p.m.

Office Hours: Thursdays 3:30-4:30 p.m., Room 201

**Course Objective**

Much of the work of public policy analysis involves quantitative methods, particularly statistical methods. This course will provide students with an introduction to basic statistical techniques, as well as one of the most popular statistical packages, SPSS. The emphasis will be on enabling students to understand the logic behind statistics, to interpret statistics used in public policy research, to be able to use appropriate statistical methods, to present statistical information in an effective fashion, and to incorporate statistics into their work as policy analysts. Good students will also become skeptical consumers of statistical claims.

**Course text**

*SPSS 12.0: Guide to Data Analysis*, by Marija Norusis

*Quantitative Methods in Practice: Readings from PS* by David A. Rochefort

We may also use online resources to cover additional topics.

One popular site you may use for extra help on many of the topics is:

<http://davidmlane.com/hyperstat/>

A somewhat more advanced website that is also useful is:

<http://www.statsoft.com/textbook/stathome.html>

**Expectations and Course Assignments**

Most weeks there will be homework assigned. Much of it will be from the *Guide to Data Analysis*, which comes with a student version of SPSS. Students will need to have access to a computer that can load the program.

(Please note: if you already have SPSS at home or work, and want to save about \$30, you can buy a copy of the book without the SPSS software from Amazon. It is highly recommended, however, that you purchase this if you do not have regular access to SPSS. It is available in our labs, but in my experience, students who do not have access to it at home tend to do worse on the homework)

Students are expected to complete their homework on time. Late homework will not be graded by the instructor, although it will help your grade to turn in the homework, even if it is late. Homework will be announced each week by the instructor. If you are not present, you should receive the assignment from a classmate with whom you have a prior arrangement. Ignorance of the homework is not an excuse for non-completion.

Homework will not be formally graded. Rather, the instructor will assess the level of effort put forth. It is okay to get the wrong answer on a homework assignment. It is not okay to turn in homework that is incomplete or sloppy.

Homework should reflect your own work and your own understanding of the material. However, some students thrive in a small group environment when studying statistics. If you work through the problems with one to three other people, each person must turn in a separate assignment. They should not be identical in language and in the presentation of computation. If you are not understanding the work, but merely copying someone else's work, you are not going to be able to pass the midterm or final. Students should also purchase a decent calculator. It does not have to be an expensive "statistics" calculator.

In previous classes, the best predictor of final exam grade was not performance on the midterm, but quality of homework. Put the time into the homework early, and you won't be weeks behind at the final.

At the end of the semester, each student will be expected to present a "finding" based on the data from the survey project described below. You may pose any question and use any method we have studied to answer it. If you would prefer to use one of the data sets in the Guide book, that is fine. Findings must be presented to the class in ten minutes, covering the statistics and what they show.

### **The GMU Graduate Student Profile Project**

In order to fully understand data collection, analysis, and the uses to which public policy analysts can put data, the class will write a short survey on national and international issues. Each member of the class is required to bring in a completed survey from at least 10 George Mason graduate students. The data set will form the basis for the final homework assignment for each student, as well as the topic of their presentation.

One student will serve as the survey director, responsible for collating all the data and distributing it to the students. Another will serve as the survey designer, responsible for vetting the questions, typesetting the survey, and distributing it to the students. The method of distribution will be paper and/or email.

### **The Finding**

At the end of the semester, each student will be expected to present a "finding" based on the data from the survey project described below. You may pose any question and use any of these methods: correlation analysis, regression analysis, or cross tabular analysis. If you would prefer to use one of the data sets in the Guide book, that is fine. Your

finding will need to be at least 4 pages of text (1,000 words), with at least 2 pages of additional charts.

Your finding should follow this format: Introduction, Hypothesis, Data and Methods, Analysis, Conclusion. You do not need to conduct a literature review.

Time permitting, you will present to the class your finding, in ten minutes. Presentations will be graded.

### **Grades**

Grades will be computed based on the following formula:

Midterm	20%
Final	40%
Homework	20% (the average of all the assignments)
Presentation	20%

### **Course Topics:**

Each course topic is expected to last for at least one lecture session. Some may last longer, some less, depending on the class.

- I. Aug. 31: Quantitative Methods in Public Policy: Introduction to Theories, Variables, Concepts.
- II. Sept. 7: Introduction to SPSS and Survey Project  
Reading: Norusis Chap. 1-3  
Rochefort Chap. 1-2
- III. Sept. 14: Basic Statistics: Central Tendency and Dispersion  
Readings: Norusis Chap. 4-7  
Rochefort Chap. 4
- IV. Sept. 21: Crosstab Analysis, Normal Distribution, and Z Scores  
Readings: Norusis Chap. 8-11  
Rochefort Chap. 6
- V. Sept. 28: Probability and Sampling Basics  
Readings: Norusis Chap. 10-11 (review)—see also Appendices A and B  
Rochefort Chap. 10
- VI. Oct. 5: Inference and Confidence Intervals  
Readings: Norusis Chap. 12-13  
Rochefort Chap. 9
- VII. Oct. 12: More Hypothesis Testing  
Readings: Norusis Chap. 12-14, 17

- VIII. Oct. 19: In Class Midterm Exam  
ANOVA  
Readings: Norusis Chap. 15, 16  
Rocheffort Chap. 11
- IX. Oct. 26: Correlations  
Readings: Norusis Chap. 20
- X. Nov. 2: Regression  
Readings: Norusis Chap. 21-22  
Rocheffort Chap. 13
- XI. Nov. 9: Multiple Regression Models  
Readings: Norusis Chap. 23-24  
Rocheffort Chap. 17
- XII. Nov. 16: Logistic Regressions  
Rocheffort Chap. 19
- XIII. No class November 23, Thanksgiving
- XIV. Nov. 30: Residuals, Diagnostics and Presentations  
Readings: Norusis Chap. 22 (review)
- XV. Dec. 7: Presentations, Final Exam Review

### **Deadlines**

Work that is late will be lowered a grade for each day it is delayed. However, no matter how late, an assignment will not receive a zero; it will always be better to turn in an assignment late than to accept a zero on an assignment.

### **SPP Policy on Plagiarism**

The profession of scholarship and the intellectual life of a university as well as the field of public policy inquiry depend fundamentally on a foundation of trust. Thus any act of plagiarism strikes at the heart of the meaning of the university and the purpose of the School of Public Policy. It constitutes a serious breach of professional ethics and it is unacceptable.

Plagiarism is the use of another's words or ideas presented as one's own. It includes, among other things, the use of specific words, ideas, or frameworks that are the product of another's work. Honesty and thoroughness in citing sources are essential to professional accountability and personal responsibility. Appropriate citation is necessary so that arguments, evidence, and claims can be critically examined.

Plagiarism is wrong because of the injustice it does to the person whose ideas are stolen. But it is also wrong because it constitutes lying to one's professional colleagues. From a prudential perspective, it is shortsighted and self-defeating, and it can ruin a professional career.

The faculty of the School of Public Policy takes plagiarism seriously and has adopted a zero tolerance policy. Any plagiarized assignment will receive an automatic grade of "F." This may lead to failure for the course, resulting in dismissal from the university. This dismissal will be noted on the student's transcript. For foreign students who are on a university-sponsored visa (e.g. F-1, J-1 or J-2), dismissal also results in the revocation of their visa.

To help enforce the SPP policy on plagiarism, all written work submitted in partial fulfillment of course or degree requirements must be available in electronic form so that it can be compared with electronic databases, as well as submitted to commercial services to which the School subscribes. Faculty may at any time submit a student's work without prior permission from the student. Individual instructors may require that written work be submitted in electronic as well as printed form. The SPP policy on plagiarism is supplementary to the George Mason University Honor Code; it is not intended to replace it or substitute for it.

#### **Academic Accommodation for a Disability**

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource center (DRC) at 703-993-2474. All academic accommodations must be arranged through the DRC.