

**PUAD 611\_003: PROBLEM SOLVING AND DATA ANALYSIS I**  
**Fall 2005, Arlington Campus**  
**Room #242**  
**FRI. 6:00 – 9:00 pm & SAT, 9:00am – 12:00 pm**

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Office Hours: Friday, 5:00 – 6:00 pm, and by appt.

### **Introduction**

This course serves as an introduction to methods of quantitative and qualitative analysis that are widely applied in the fields of public administration and public policy studies. The goal of the course is to provide students with a sound understanding of the theoretical, empirical and practical demands of quantitative analysis encountered by public sector analysts and administrators. The course will introduce research methodologies and statistical analyses addressing a wide range of issues important to the public and private sectors. Students completing the course will be able to evaluate critically their own research findings and those employed by others. More specifically, the course will consider:

Research Design  
Measurement  
Data Collection, Organization and Manipulation  
Descriptive and Inferential Statistics  
Computer Applications  
Tabular/Graphic/Written Presentation of Research Results

### **Prerequisites**

The course presumes a familiarity with high school or college algebra and the successful completion of the MPA Statistics Screening Exam.

### **Requirements and Grading**

Students must complete: 1) five homework assignments (15%), 2) a mid-term examination (30%), 3) a 7-10 page research report (15%) and, 4) a final examination (40%). Homework assignments are due at the beginning of class on the designated dates. The midterm and final examinations are of the take-home variety, with due dates as specified in the class schedule below.

### **Materials for Exams and Assignments**

Course assignments will include computer-based activities drawn from Norusis' *SPSS 13.0 Guide to Data Analysis*; Meier, Brudney and Bohte's *Applied Statistics for Public and Nonprofit Administration*, and; WebCT-based materials developed by the Instructor. Examinations will incorporate materials drawn from the above materials and presented in classroom lectures.

### **Late Assignments and Grades of Incomplete**

Assignments are due at the *beginning* of class on the scheduled due date. Late assignments are generally NOT accepted unless prior arrangements are made with the Instructor.

Grades of “Incomplete” require written application to the Instructor at least 24 hours before the scheduled date of the final exam. Applications must include: reason for request, course work completed to date, and a schedule for finishing all remaining course work.

### **Required Texts**

*SPSS 13.0 Guide to Data Analysis*, Marija J. Norusis, Prentice-Hall, Inc. (2005).

*Applied Statistics for Public and Nonprofit Administration*, 6th ed., Meier, Kenneth J., Brudney, Jeffrey L., and Bohte, John, Thompson-Wadsworth (2006).

*The Chicago Guide to Writing About Numbers*, Miller, Jane E., University of Chicago Press (2004).

### **Recommended Materials**

*The Craft of Political Research* (4th ed.), W.P. Shively, Prentice Hall (1998).

*Methods for Political Inquiry*, S. Theodoulou & R. O'Brien, Prentice Hall (1999).

*Social Statistics: An Introduction Using MicroCase*, W. Fox, MicroCase Corp. (1995).

**PUAD 611--PROBLEM SOLVING AND DATA ANALYSIS I  
FALL 2005 COURSE SCHEDULE**

- Oct. 14 INTRODUCTION TO EMPIRICAL RESEARCH & STATISTICAL MODELS  
--Meier, Brudney and Bohte, Ch. 1  
--Miller, Chs. 1-2  
--Norusis, Chs. 1 – 2

Go to the SPSS website ( <http://www.spss.com/downloads/Papers.cfm?list=all&name=all>) for “white papers” which provide examples of 1) SPSS’ statistical capabilities and 2) how to communicate the results of a statistical analysis. You must first register with SPSS and select a UserId and password. Read “Basic applied techniques: Choose the right statistic to make better decisions.” Other papers of interest include: “Statistics in Government”, “The Future of Program Evaluation in the Era of Government Reinvention,” and “Satisfaction survey analysis using statistics.” NOTE: These are all PDF files and you must have ADOBE or other PDF-capable software to open them.

--**Assignment #1**: 2-page written report describing research issue, study design, and anticipated findings. **Due 10/21/05.**

- Oct. 21 ELEMENTS OF RESEARCH DESIGN (Description & Explanation)  
--Meier, Brudney and Bohte, Ch. 3  
--Miller, Ch. 3

- Oct. 22 PRIMARY & SECONDARY DATA SOURCES  
--Meier, Brudney and Bohte, Ch. 2  
--Miller, Ch. 4  
--Norusis, Ch. 3  
DATAFILES:Organizing, Storing, Summarizing & Manipulating  
--Meier, Brudney and Bohte, Ch. 4.  
--Miller, Ch. 5  
--Norusis, Ch.4 and Appendix A  
--**Assignment #2**: Primary OR Secondary Source, SPSS Datafile & SPSS

Results

**Due 11/4/05**

**UNIVARIATE STATISTICS**

- Nov. 4 DESCRIPTIVE STATISTICS (I)  
-- Meier, Brudney and Bohte, Chs. 5-6  
--Norusis, Ch. 5  
--Miller, Chs. 6, 7, 8  
--Go to <http://www.spss.com/downloads/Papers.cfm?list=all&name=all> or Fox’s *Social Statistics: An Introduction Using MicroCase* (examples presented at the end of each chapter of the book) to review written presentations of the results of the various statistical techniques covered throughout the remainder of the course.

**Assignment #3**: Descriptive Statistics. **Due 11/05/05**

- Nov. 5 SAMPLES, PROBABILITY & the NORMAL DISTRIBUTION  
--Norusis, Ch. 7 (pp. 115-118) & Ch. 11  
--Meier, Brudney and Bohte, Chs. 7, 8, 9

FROM SAMPLE TO POPULATION--CONFIDENCE INTERVALS

--Norusis, Ch. 10

--Meier, Brudney and Bohte, Chs. 11, 12, 13

--**Midterm Exam distributed at the end of class (due 11/14/05)**

Nov. 18 HYPOTHESES AND HYPOTHESIS TESTING (a single mean)

--Meier, Brudney and Bohte, Ch. 13

--Norusis, Ch. 12

--Miller, Ch. 9

**BIVARIATE STATISTICS**

CONTINGENCY TABLE ANALYSIS

--Norusis, Chs. 8 & 17

--Meier, Brudney and Bohte, Chs. 15, 16

Nov. 19 CONTINGENCY TABLE ANALYSIS, MEASURES OF ASSOCIATION

--Meier, Brudney and Bohte, Ch. 13

--Norusis, Chs. 17, 19

--Miller, Ch. 9, Ch. 1 (pp.26-31

DIFFERENCE OF MEANS TESTING

--Meier, Brudney and Bohte, Ch. 14

--Norusis, Chs. 13, 14

**Assignment #4:** 2-page written report presenting the results of a contingency table analysis AND a Difference of Means test. **Due 12/2/05**

Dec. 2 CORRELATION & REGRESSION

--Miller, Chs. 10, 11

--Meier, Brudney and Bohte, Chs. 18, 19

--Norusis, Chs. 9, 20-22

**Assignment #5:** 2-page report on 1 correlation AND 1 regression. **Due 12/4/05**

Dec. 3 CORRELATION & REGRESSION (II)

-- Meier, Brudney and Bohte, Chs. 18, 19

--Norusis, Chs. 20 - 22

SEMESTER REVIEW

--Go to <http://www.execpc.com/~helberg/pitfalls/> for *Pitfalls of Data Analysis (or How to Avoid Lies and Damned Lies)*

--Go to <http://www.bts.gov/statpol/btsguide.html> for BTS' (Bureau of Transportation Statistics) *Guide to Good Statistical Practice: A Handbook for Data Program Managers and Analysts*

**Final Paper: Final Paper due at beginning of class  
TAKE-HOME FINAL DISTRIBUTED AT END OF CLASS**

Dec. 11

**FINAL EXAMINATION DUE: 6:00 p.m.**