
Quantitative Techniques in Planning

UAP 5224, Fall 2007

Monday, 7:00-9:30, 2nd Floor Computer Lab (1021 Prince St., Alexandria)

Contact Information

Instructor: Kris Wernstedt
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Office Hours: By appointment only (please!!)

Course Objectives

UAP 5224—also sometimes referred to as *Research Methods in Planning and Policy*—is an introductory course in quantitative methods used in planning activities. Although it covers different conceptual issues in analysis—and requires students to undertake a small research project—it focuses on the application of quantitative methods. This includes the nitty gritty of interpreting results as well as the actual plugging and chugging. The course aims to expose or reacquaint students with:

- basic concepts in probability, inferential statistics, regression, quantitative descriptive measures, and cost benefit techniques that are used in planning and related disciplines;
- the use of socioeconomic and demographic data from such sources as the US Bureau of the Census in planning and policy related analyses;
- the use of quantitative methods to address planning and policy questions and evaluate alternative options, including research design, hypothesis generation, data collection, and analysis; and
- communication of the process and results from quantitative analyses, in graphical, textual, and oral forms.

The class features lectures, hands-on exercises, discussion of readings, and out-of class assignments. It relies principally on Microsoft Excel and the statistical software package Stata.

Learning Objectives

By the end of the class, the student will:

- Demonstrate the ability to understand simple probability problems, conduct inferential tests, use regression techniques, access and interpret Census data, employ quantitative descriptive measures to summarize social and economic phenomena, and apply cash flow discounting techniques;
- demonstrate the ability to use quantitative methods to address planning, policy, or other research questions; and
- Demonstrate familiarity with data sources and quantitative methods used by planners, policy practitioners, and researchers in other fields

Required Course Materials

Kenneth J. Meier, Jeffrey L. Brudney, and John Bohte. 2006: *Applied Statistics for Public and Nonprofit Administration*. 6th edition. (or another approachable stats book)

Gary Blake and Robert W. Bly. 1993: *The Elements of Technical Writing*. New York: Longman.

Other reading on VT Blackboard (more details given in class)

Pocket calculator (cheap and cheesy is fine)

Assignments, Due Dates, and Grading

- Problem Sets, 20%: 4 sets of problems at 5% for each set
- Project Assignments, 20%: 2 assignments at 10% for each assignment
- Readings Presentation, 10%: 1-page, single space written synopsis and oral presentation of 1 reading assignment (need to sign up for date and reading on Blackboard Discussion Board, with first come first serve and no duplication of readings or dates)
- Individual Project, 35%: long-term individual project (oral and written reports due in early December in a special class meeting to be scheduled)—note interim due dates for research question, research hypothesis, and research plan, which together account for $\frac{1}{3}$ of the final project grade
- Class Participation, 15%: showing up and staying awake is part of it, actively participating is the other, including at least 2 written questions prepared for each week's reading (to be turned in at the beginning of class)

All problem sets, project assignments, and interim products for the individual project should be turned in by the end of class on the day they are due. Unless you make prior arrangements with me, you will lose 10% of your points for each day after the due date that you turn in one of these. The individual project must be turned in by December 10th to get grades in on time.

Tentative Schedule (almost guaranteed to change)WEEK

- 1 *AUGUST 20: INTRODUCTION AND OVERVIEW*
- 2 *AUGUST 27: RESEARCH DESIGN & DATA TAXONOMY, AND DATA SOURCES*
 ♦Kaufman, S. and R. Simons. 1995: Quantitative and Research Methods in Planning: Are Schools Teaching What Practitioners Practice? *Journal of Planning Education and Research*, 15. 17-33.
 Meier, Brudney, & Bohte. Chapter 2-3.
- 3 *SEPTEMBER 3: CENSUS DATA SOURCES & DESCRIPTIVE MEASURES*
Individual Project Research Question due
 ♦Frey, William H., Jill H. Wilson, Alan Berube, and Audrey Singer. 2004: *Tracking Metropolitan America into the 21st Century: A Field Guide to the New Metropolitan and Micropolitan Definitions*. Washington, DC: The Brookings Institution Metropolitan Policy Program.
 Meier, Brudney, & Bohte. Chapter 5.
- 4 *SEPTEMBER 10: DESCRIPTIVE MEASURES, CONTINUED*
 ♦Skerry, Peter. 2000: Counting on the Census? *Policy Brief 56*, March. Washington, DC: The Brookings Institution.
 Meier, Brudney, & Bohte. Chapter 6.
- 5 *SEPTEMBER 17: DESCRIPTIVE MEASURES, CONTINUED AND PROBABILITY*
Problem Set #1 due
 ♦Talen, Emily. 2006: Neighborhood-Level Social Diversity. *Journal of the American Planning Association*, 72(4). 431-446.
 Meier, Brudney, & Bohte. Chapter 7.
- 6 *SEPTEMBER 24: PROBABILITY AND INFERENCEAL TECHNIQUES*
Revision of Individual Project Research Question due
 ♦Sawicki, David S. and Patrice Flynn. 1996: Neighborhood Indicators: A Review of the Literature and an Assessment of Conceptual and Methodological Issues. *Journal of the American Planning Association*, 62(2). 165-183.
 Meier, Brudney, & Bohte. Chapters 8-9, 11.
- 7 *OCTOBER 1: PROBABILITY AND INFERENCEAL TECHNIQUES (CONTINUED)*
Assignment #1 due
 ♦Williamson, Chris. 2006: Is that a Good Assumption? *Planning*, 73(1). January. 40-43.
 Meier, Brudney, & Bohte. Chapter 12.
- 8 *OCTOBER 8: NO CLASS (FALL BREAK)*
- 9 *OCTOBER 15: INFERENCEAL TECHNIQUES (CONTINUED)*
Problem Set #2 due
 ♦Anonymous. 1992: A Critique of Pure Reason. *The Economist*. July 4, 1992. 73-74.
 Meier, Brudney, & Bohte. Chapter 13-14.

WEEK

10 OCTOBER 22: REGRESSION

Individual Project Research Unit of Analysis Discussion and Hypothesis due

- ♦Robinson, W.S. 1950: Ecological Correlations and the Behavior of Individuals. *American Sociological Review*, 15(3). 351-357.
- Meier, Brudney, & Bohte. Chapter 18-19.

*11 OCTOBER 29: REGRESSION (CONTINUED)

Problem Set #3 due

- ♦Hyman, Jeffrey B. and Kris Wernstedt. 1995: A Value-Informed Framework for Interdisciplinary Analysis: Application to Recovery Planning for Snake River Salmon. *Conservation Biology*, 9(3). 625-635.
- Meier, Brudney, & Bohte. Chapters 20-21.

12 NOVEMBER 5: REGRESSION (CONTINUED) AND STATISTICAL SOFTWARE

Individual Project Research Plan due

- ♦Miranda, Rowan A. and Ittipone Tunyavong. 1994: Patterned Inequality: Reexamining the Role of Distributive Politics in Urban Service Delivery. *Urban Affairs Quarterly*, 29(4). 509-534.
- Meier, Brudney, & Bohte. Chapter 23.

13 NOVEMBER 12: PROJECT EVALUATION

Assignment #2 due

- ♦Shabman, Leonard and Kurt Stephenson. 2000: Environmental Valuation and its Economic Critics. *Journal of Water Resources Planning and Management*, 126(6). 382-388.

14 NOVEMBER 19: NO CLASS (THANKSGIVING BREAK)

15 NOVEMBER 26: PROJECT EVALUATION (CONTINUED)

- ♦Leinberger, Christopher B. 2001: *Financing Progressive Development*. Washington, DC: The Brookings Institution Center on Urban and Metropolitan Policy, Harvard University Joint Center for Housing Studies, and Capital XChange.

16 DECEMBER 3: CONTINGENCY TABLES AND CENSUS SAMPLING

Problem Set #4 due

- ♦Kneese, Allen V. 2006: The Faustian Bargain: Risk, Ethics, and Nuclear Energy. In *The RFF Reader in Environmental and Resource Policy*, Wallace E. Oates, editor. Washington, DC: Resources for the Future. 43-50.
- Meier, Brudney, & Bohte. Chapters 15-16.

DECEMBER XX: SPECIAL EXAM WEEK CLASS MEETING FOR PROJECT PRESENTATIONS (TBD)

Oral Presentation of Individual Project due

Written Report of Individual Project due