Hubert H. Humphrey School of Public Affairs  
University of Minnesota  
Spring Semester 2016

**PA 5033**  
*Multivariate Techniques*  
*Section 4*

Hubert H. Humphrey Center 25  
8:15 A.M. - 9:30 A.M. Monday and Wednesday

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Instructor: Jason F. Hicks  
260 Humphrey Center  
Phone: 612-625-2089  
Office Hours: Tuesday 3:00-4:00 pm  
Wednesday 1:00-2:00 pm  
Other times by appointment  
hicks208@umn.edu

**Teaching Assistants (cubes are located near room 274 on the 2nd floor of the Humphrey offices):**

- **Steve Lutes**  
  Location: Cube S  
  Office Hours: Tuesday 10:00am-11:00pm; 2:00-3:00pm  
  Friday 11:00am-12:00pm  
  lutes010@umn.edu

- **Brooke McManigal**  
  Location: Cube T  
  Office Hours: Thursday 1:30-3pm  
  mcman134@umn.edu

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**Welcome to Multivariate Techniques!**

**Lab (Section 6):** 12:45 - 1:35pm Friday in 85 Humphrey Center  
**Lab (Section 5):** 1:50 - 2:40pm Friday in 85 Humphrey Center

Class lectures and other material can be found at the **Moodle Site** for this class.
Objective of the Course and Requirements

This course is designed to help you read, understand, interpret, use, and evaluate empirical work used in the social sciences and by policy analysts. To advance that goal, the class focuses on several quantitative techniques used by public policy researchers. When combined with the material you have learned in basic statistics and regression analysis, you will be well prepared to learn additional multivariate techniques as you encounter them. An especially important issue concerns the role of the analyst’s judgment in drawing inferences from the data and, more broadly, just how “scientific” the whole enterprise of data analysis really is, as well as how these approaches can be used by advocates of particular public policies. The expectation is that completing this course will allow you to be competitive based on your analytical abilities with graduate students in the other outstanding public policy programs in the U.S and in other nations.

This course assumes a background in statistics at the minimum of PA 5032 - Regression Analysis. The course requirements include two problem sets (40 percent of the course grade), homework problems/class participation (10 percent of the course grade), answers to questions in class to determine close grade assignments, and an exam (50 percent). Problem set one and all homework problems are assumed to be derived and written on an individual basis, and group answers/solutions for these assignments will not be accepted. Problem set two will be a group assignment. However, working with a group for all homework assignments is encouraged. The examination will be in-class and closed book; essential formulas will be provided, but not identified. Substantial deductions in grades will be given to any material not turned in on the due date, and no credit will be given for any work turned in after the assignments are returned to the class. All problem sets and class problem write ups must be submitted in hard copy and also uploaded to the appropriate folder on the course website. An asterisk (*) besides an article indicates that the reading is optional. Videos on class material, helpful hints, and distributed cases discussed in class can be accessed through Moodle. Additional readings in the syllabus will be discussed during class and also can be accessed through eReserves via the University of Minnesota Libraries.

Classroom Expectations:

Honesty. Do your own work. Plagiarizing from other students, books and journals, the internet, and other sources is a serious offense and is not acceptable. Be sure to fully cite your work. Make honest contributions to your group projects (do not be a free rider).

Preparation. Come to class prepared to listen, learn, and participate. Attend group meetings and be prepared to make meaningful contributions and to help other group members make contributions.

Politeness. Ask questions and contribute to class discussions in a positive, inclusive, and respectful manner. Respond to dissenting views with respect and reason.

Attentiveness. Turn off and do not answer your cell phone. Laptop computers are welcome for class-related purposes such as note taking. Other activities are inappropriate. Limit individual conversations and other distractions to break times. Focus on the tasks at hand during group meetings.
Timeliness. Complete assignments on time. Be on time for group meetings and for class. Unforeseen events occur and students have multiple demands on their time. If you must arrive late or leave early, do so without walking in front of any speakers. Provide advance notice to the professor whenever possible. Try to reserve the seats by the door for those who must arrive late or leave early.

Half-semester or other special session courses have their final scheduled for the last class day based on University of Minnesota policy.


Readings are available via eReserves at the University of Minnesota Libraries

March 21 Introduction and Review of the Logic of Statistical Analysis—mimicking science experiments

Reading: Review: Studenmund, Chapter 1, 2

Video: Multivariate Course Introduction (1:50)
http://player.vimeo.com/external/89316179.sd.mp4?s=5148a78bbdba654e8040327fa8ae93f1


March 23 Key Issues in Ordinary Least Squares, the Classical Model, and Hypothesis Testing—(Control groups, experiments, and analysis)

Reading: Studenmund, Chapter 11.

Video: Classical Statistical Model (4:01)
http://player.vimeo.com/external/89310772.sd.mp4?s=a6ddd7d2b7bd2e8c5179d300a7b1d26f


March 28 and March 30 Time-Series Models and Policy Issues- using history for analysis (Homework–Advertising and Sales)

Reading: Studenmund, Chapter 12.
April 4 and April 6  **Statistical “Cause and Effect”: Estimation of Simultaneous Systems**  (Homework-Choosing Statistical Instruments on Policy Issues)

Reading: Studenmund, Chapter 14.

Statistical Cause and Effect (6:38)  
http://player.vimeo.com/external/89311930.sd.mp4?s=5d368813267f5d3c7bb471473047b76a

*J. D. Angrist and A. B. Krueger, “Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments”,  

April 11 and April 13  **Forecasting Economic Outcomes- Importance in the Political Debates**

Reading: Studenmund, Chapter 15

Video: Forecasting Models (6:10)  
http://player.vimeo.com/external/89312459.sd.mp4?s=f5e0f7caf575abbd6da2978aaade81c6


**April 13  PROBLEM SET #1 DUE**

April 18 and April 20  **Techniques for Estimating Qualitative Choice Data, Surveys, and Cases**

Reading: Studenmund, Chapter 13
Video: Qualitative Choice Analysis (9:06)
http://player.vimeo.com/external/89314391.sd.mp4?s=011f7d08f8ee47e0c04711a460262fbc


April 25, April 27, and May 2nd Using Panel Models, Qualitative Comparative Analysis, “Big Data,” and Sampling and Selectivity Bias (Application to Education Policy and Instruments in the Classroom)

Reading: Studenmund, Chapters 16 and Chapter 17 only pp. 554-559.

Video: Experimental Methods, Panel Data and Selection (10:22)
http://player.vimeo.com/external/89315167.sd.mp4?s=3a4d539a08b7eb13eb282957f4ba7b02

Handout and on Moodle.


May 2 PROBLEM SET #2 DUE

EXAMINATION: Wednesday, May 4 2016, 9:30 a.m. to 11:00 a.m.