

## PUBP 811: Quantitative Methods and Research Design (Statistical Analysis for Public Policy)

| University of Saskatchewan Campus |  |
|-----------------------------------|--|
| <b>Instructor:</b>                | Haizhen Mou  |
| <b>Phone:</b>                     | 966-5305   |
| <b>E-mail:</b>                    | haizhen.mou@usask.ca   |
| <b>Office Hours:</b>              | Thursdays between 1:30 and 3:30 p.m.<br>(but feel free to contact me at other times) |
| <b>Office Location:</b>           | Diefenbaker 158  |
| <b>Term:</b>                      | Term 1 (fall)  |
| <b>Room:</b>                      | Diefenbaker 162 (board room)   |
| <b>Time:</b>                      | Fridays from 9:00 a.m. to 11:50 a.m.,<br>September 11 to December 4                  |

### CALENDAR DESCRIPTION

Provides students with the statistical concepts and techniques required for conducting research and critically evaluating empirical studies. Topics include statistical inference, sampling theory, and data and regression analysis as applied to problems in public policy.

### COURSE CONTENT AND APPROACH

This course is designed to introduce you to the basic principles of bivariate and multivariate regression analysis, and to apply the regression model to problems in political science, public administration, and public policy research. Various modifications to the regression model will be examined, as will several problems that often plague regression models. Finally, you will become familiar with the regression routines of the statistical package STATA. This software will be used in completing class assignments.

This course emphasizes the application of statistical procedures more than the theoretical or mathematical principles behind them. While you will learn the basic theoretical and mathematical principles of regression analysis, the overall objective of the course is to learn how to apply this method to diverse empirical problems in public policy.

The course has a lecture format. However, discussion is encouraged. As well, portions of class time will be devoted to the discussion of journal articles in which techniques learned in lectures are applied to specific research topics.

### REQUIRED READINGS

One text has been ordered and is available at the bookstore:

Leo H. Kahane, *Regression Basics* (Thousands Oaks: Sage, 2001).

## **SUPPLEMENTARY READINGS**

Other readings (i.e., book chapters and journal articles used for discussion) are available on reserve in the graduate student room (Diefenbaker, room 159). If you are looking for an introductory text on statistical methods, I would recommend:

- Jack Levin and James Fox, *Elementary Statistics in Social Research* (Toronto: Pearson, 2006).

In this course, I assume that most of you have no experience using STATA. I will supply help sheets for using this program, and the statistics “primer” sessions led by Steve White will introduce you to STATA. Should you desire more exhaustive resources, there are many manuals available in the library, bookstore, and online.

## **EVALUATION**

There will be four assignments and one article summary. The first assignment is primarily a written assignment. The other three assignments involve more extensive use of STATA. The second assignment requires a short presentation (of approximately 5-10 minutes) to the class on the results of some basic data analysis. Each student will also be responsible for presenting a summary of one of the various journal articles that will be discussed in this term. More details on the requirements of the article summary will be provided in class. There will be two exams: an in-class mid-term and a final. Neither will require a calculator.

|  |      |
|--|------|
| Assignment 1 Bivariate Regression-paper and pencil | 10%  |
| Assignment 2 Bivariate Regression-computer         | 10%  |
| Assignment 3 Multiple Regression                   | 20%  |
| Assignment 4 Logistic Regression                   | 20%  |
| Article summary                                    | 10%  |
| Mid-term examination                               | 10%  |
| Final examination                                  | 20%  |
| Total:   | 100% |

## **LATE ASSIGNMENTS**

Without compelling reasons, late assignments will not be accepted and will result in a mark of zero.

## **STUDENTS WITH SPECIAL NEEDS**

All students who have special needs are encouraged to register with Disability Services for Students (DSS). Access to most services and programs provided by DSS is restricted to students who have registered with the office. Once you have registered, please contact the professor to discuss accommodations.

## **ACADEMIC INTEGRITY AND CONDUCT**

Ensuring that you understand and follow the principles of academic integrity and conduct as laid out in the University of Regina’s Graduate Calendar and the University of Saskatchewan’s Guidelines for Academic Conduct is vital to your success in graduate school. Ensuring that your work is your own and reflects both your own ideas and those of others incorporated in your work is important: ensuring that you acknowledge the ideas, words, and phrases of others that you use is a vital part of the scholarly endeavour. If you have any questions at all about academic integrity in general or about specific issues, contact your course instructor and to discuss your questions.

# Introduction to PUBP 811: Quantitative Methods and Research Design

## Session 1 – September 11: Course introduction: overview of statistical analysis

### *REQUIRED READINGS*

- Christopher Achen, *Interpreting and Using Regression* (Newbury Park, CA: Sage, 1982), Chapter 1 “Introduction” and Chapter 2 “Elementary Regression Theory and Social Science Practice”, pp. 7-30.
- John Richard, Jennifer Hove, and Kemi Afolabi, “Understanding the Aboriginal/Non-Aboriginal Gap in Student Performance” *C.D. Howe Institute Commentary*, No. 276 (December 2008), available online at [http://www.cdhowe.org/pdf/commentary\\_276.pdf](http://www.cdhowe.org/pdf/commentary_276.pdf).

### *SUPPLEMENTARY READINGS*

- Maureen Mancuso, Michael Atkinson, André Blais, Ian Greene, and Neil Nevitte, *A Question of Ethics: Canadians Speak Out*, (Toronto: Oxford University Press, 1998), Chapter 2 “Drawing the Ethical Map”.
- Joel Best, *More Damned Lies and Statistics: How Numbers Confuse Public Issues*, (Berkeley: University of California Press, 2004) Chapter 6 “Contentious Numbers”.
- Garnet Picot, “Does Statistical Analysis Matter?” *Horizons*, 6:1 (Policy Research Initiative: 2003), pp. 6-10.
- James P. McGregor, “Procrustus and the Regression Model: On the Misuse of the Regression Model,” *PS: Political Science & Politics*, 26:4 (December, 1993), pp. 801-804.

## Session 2 – September 18: Introduction to correlation and linear regression: bivariate OLS

### *REQUIRED READINGS*

- Kahane, *Regression Basics*, Chapter 1; Chapter 2, pp. 19-29.
- Joseph P. Newhouse, “Medical-Care Expenditure: A Cross-National Survey,” *Journal of Human Resources*, 12: 1 (Winter, 1977), pp.115-125.

### *SUPPLEMENTARY READINGS*

- Éric Bélanger, “Issue Ownership by Canadian Political Parties 1953-2001,” *Canadian Journal of Political Science* 36 (July/August, 2003), pp. 539-558.
- Jeremy L. Hall, “Informing State Economic Development Policy in the New Economy: A Theoretical Foundation and Empirical Examination of State Innovation in the United States,” *Public Administration Review* 67:4 (July/August, 2007), pp. 630-645.
- Linda M. Gerber, “Urban Diversity: Riding Composition and Party Support in the Canadian Federal Election of 2004,” *Canadian Journal of Urban Research* 15:2 Supplement (2006), pp. 105-118.
- Amy K. Donahue and Joanne M. Miller, “Citizen Preferences and Paying for Police,” *Journal of Urban Affairs* 27:4 (2005), pp. 419-435.

## Session 3 – September 25: Regression model assumptions and the analysis of residuals

### *REQUIRED READINGS*

- Kahane, Chapter 2, pp. 30-34; Chapter 6, pp. 119-131.

## **Session 4 – October 2: Hypothesis testing and model performance**

### *REQUIRED READINGS*

- Kahane, Chapter 3
- Achen, Chapter 4, “Comparing Substantive and Statistical Significance”, pp. 46-51.
- Jonathan McDonald Ladd, “Predispositions and Public Support for the President During The War on Terrorism,” *Public Opinion Quarterly* 71:4 (2007), pp. 511-538.

## **Session 5 – October 9: Mid-term review**

## **Session 6 – October 16: Mid-term examination**

## **Session 7 – October 23: The multiple regression model: Partial slopes**

### *REQUIRED READINGS*

- Kahane, Chapter 4.
- Laurence J. O’Toole Jr. and Kenneth J. Meier, “Parkinson’s Law and the New Public Management? Contracting Determinants and Service-Quality Consequences in Public Education,” *Public Administration Review* 64:3 (June, 2004), pp. 342-352.

### *SUPPLEMENTARY READINGS*

- Paul Goren, “Core Principles and Policy Reasoning in Mass Publics: A Test of Two Theories,” *British Journal of Political Science* 31:1 (January, 2001), pp. 159-177.
- Gene A. Brewer, “In the Eye of the Storm: Frontline Supervisors and Federal Agency Performance,” *Journal of Public Administration Research and Theory*, 15:4 (2005), pp. 505-527.
- Cameron D. Anderson and Elizabeth Goodyear-Grant, “Conceptions of Political Representation in Canada: An Explanation of Public Opinion,” *Canadian Journal of Political Science* 38:4 (December, 2005), pp. 1029-1058.

## **Session 8 – October 30: Diagnostics and data transformations**

### *REQUIRED READINGS*

- Kahane, Chapter 5, pp. 79-83.
- Edward Tufte, *Data Analysis for Politics and Policy* (Englewood Cliffs, N.J.: Prentice-Hall, 1974), Chapter 3, “Example 6: Interpretation of Regression Coefficients when the Variables are Re-expressed as Logarithms (with Five Examples)”, pp. 108-134.
- John Fox, *Regression Diagnostics* (Newbury Park, CA: Sage, 1991), Chapter 4 “Outlying and Influential Data”, pp. 21-40.
- Joseph G. Nagy and W. Hartley Furtan, “Economic Costs and Returns from Crop Development Research: The Case of Rapeseed Breeding in Canada,” *Canadian Journal of Agricultural* 26:1 (Feb. 1978), pp. 1-14.

## **Session 9 – November 6: The multiple regression model: interaction effects and dummy variables**

### *REQUIRED READINGS*

- Kahane, Chapter 5, pp. 83-101.
- Mohammed H.I. Dore and Surendra Kulshreshtha, “The Labor Market and Rural- Urban Differences Among First Nations: The Case of Saskatchewan,” *Journal of Socio-Economics*, 32:2 (May 2003), pp. 147-159.

### *SUPPLEMENTARY READINGS*

- Abdelaziz Testas, “Economic and Political Explanations of Algeria’s Human Rights Violations,” *International Journal of Human Rights* 8:4 (Winter, 2004), pp. 399-411.
- Matthew E. Wetstein and C.L. Ostberg, “Strategic Leadership and Political Change on the Canadian Supreme Court: Analyzing the Transition to Chief Justice,” *Canadian Journal of Political Science* 38:3 (September, 2005), pp. 653-673.
- John B. Gilmour and David E. Lewis, “Assessing Performance Budgeting at OMB: The Influence of Politics, Performance, and Program Size,” *Journal of Public Administration Research and Theory*, 16:2 (2005), pp. 169-186.

### **Session 10 – November 13: The multiple regression model: choosing a specification**

#### *REQUIRED READINGS*

- Kahane, Chapter 6, pp. 113-119.
- Jeffrey E. Cohen, “Economic Perceptions and Executive Approval in Comparative Perspective,” *Political Behaviour* 26:1 (March, 2004), pp. 27-43.

### *SUPPLEMENTARY READINGS*

- M. Reza Nakhaie, “Electoral Participation in Municipal, Provincial and Federal Elections in Canada,” *Canadian Journal of Political Science* 39:2 (June, 2006), pp. 363-390.
- Kyung-Ho Lee and Jai S. Mah, “Institutional Changes and Antidumping Decisions in the United States,” *Journal of Policy Modeling*, 25: 6-7 (2003), pp. 555-565.

### **Session 11 – November 20: Limited dependent variables: logistic regression**

#### *REQUIRED READINGS*

- Kahane, Chapter 7.
- Fred C. Pampel, *Logistic Regression: A Primer* (Newbury Park, CA: Sage, 2000), Chapter 1 “The Logic of Logistic Regression” and Chapter 2 “Interpreting Logistic Regression Coefficients”, pp. 1-30.
- Kelly M. LeRoux, “What Drives Nonprofit Entrepreneurship?: A Look at Budget Trends of Metro Detroit Social Service Agencies,” *American Review of Public Administration*, 35:4 (December, 2005), pp. 350-362.

### *SUPPLEMENTARY READINGS*

- C.J. Pattie and R.J. Johnston, “Civic Literacy and Falling Electoral Turnout: The United Kingdom 1992-1997,” *Canadian Journal of Political Science* 36:3 (July/August, 2003), pp. 579-599.
- Anna Ya Ni and Stuart Bretschneider, “The Decision to Contract Out: A Study of Contracting for E-Government Services in State Governments,” *Public Administration Review*, 67:3 (May, 2007), pp. 531-544.
- R. Alan Walks, “Place of Residence, Party Preferences, and Political Attitudes in Canadian Cities and Suburbs,” *Journal of Urban Affairs* 26:3 (August, 2004), pp. 269-295.

### **Session 12 – November 27: Time series data**

#### *REQUIRED READINGS*

- Kahane, Chapter 5, pp. 101-107; Chapter 6, pp. 127-131.
- Kevin B. Smith and Christopher W. Larimer, “A Mixed Relationship: Bureaucracy and School Performance,” *Public Administration Review* 64:6 (December, 2004), pp. 728-736.
- Nita Rudra, “Globalization and the Strengthening of Democracy in the Developing World,” *American Journal of Political Science*, 49:4 (October, 2005), pp. 704-730.

*SUPPLEMENTARY READINGS*

- Stephen M. Saideman, David J. Lanoue, Michael Campenni and Samuel Stanton, “Democratization, Political Institutions, and Ethnic Conflict: A Pooled Time-Series Analysis, 1985-1998,” *Comparative Political Studies* 35:1 (February, 2002), pp. 103-129.

**Session 13 – December 4: End of term review**