

JSGS 803 – QUANTITATIVE METHODS AND RESEARCH DESIGN

UNIVERSITY OF SASKATCHEWAN CAMPUS	
INSTRUCTOR:	Patricia Gober
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TERM:	Term 1 (Fall 2013)
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DATE AND TIME:	Mondays 9am-noon

CALENDAR DESCRIPTION

Provides students with the statistical concepts and techniques required to conduct research and critically evaluate 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 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 SPSS. 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. 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.

COURSE OUTLINE AND ASSIGNMENTS

Session 1 – September 16: Course Introduction: Overview of Statistical Analysis (statistical inference, probability distributions, sampling distributions, scales of measurement, variables and constants, hypothesis testing, Type 1 and Type 2 errors, significance levels)

REQUIRED READINGS

- Garnet Picot, “Does Statistical Analysis Matter?” *Horizons*, 6:1 (Policy Research Initiative: 2003), pp. 6-10. (<http://dsp-psd.pwgsc.gc.ca/Collection/CP12-1-6-1E.pdf>)
- Joel Best, *More Damned Lies and Statistics: How Numbers Confuse Public Issues*, (Berkeley: University of California Press, 2004) Chapter 6 “Contentious Numbers”.

Session 2 – September 23: Introduction to Correlation and Linear Regression, (bivariate OLS, best-fit regression line, correlation coefficients, regression coefficients, residuals)

- Kahane, *Regression Basics*, Chapter 1; Chapter 2, pp. 19-29.
- 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. (<http://winnspace.uwinnipeg.ca/bitstream/handle/10680/381/2006-cjur-vol.15.2.pdf?sequence=1> and then use pdf search function <ctrl + f> to search for “Gerber” in the document.)
- B. Curtis Eaton and Mukesh Eswaran, “Differential Grading Standards and Student Incentives,” *Canadian Public Policy* 34:2 (June 2008), pp. 215-36. (<http://library.usask.ca/scripts/remote?URL=http://www.jstor.org/stable/pdfplus/25463608.pdf?acceptTC=true>)
- 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.

ASSIGNMENT 1: OLS REGRESSION (DUE SEPTEMBER 30)

Session 3 – September 30: Hypothesis testing and model performance (r^2)

REQUIRED READINGS

- Kahane, Chapter 3
- Edward Tufte, *Data Analysis for Politics and Policy* (Englewood Cliffs, N.J.: Prentice-Hall, 1974), Chapter 3, “Example 5: Comparing the Slope and the Correlation Coefficient”, pp. 101-107.
- Christopher H. Achen, *Interpreting and Using Regression*, Chapter 4, “Comparing Substantive and Statistical Significance”, pp. 46-51.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.4135/9781412984560.n4>
- Joseph P. Newhouse, “Medical-Care Expenditure: A Cross-National Survey,” *Journal of Human Resources*, 12:1 (Winter 1977), pp.115-125.
<http://library.usask.ca/scripts/remote?URL=http://www.jstor.org/stable/pdfplus/145602.pdf?acceptTC=true>

ASSIGNMENT 2: RUN REGRESSION ANALYSIS IN SPSS (DUE OCTOBER 9)

Session 4 – October 7: Regression Model Assumptions and Analysis of Residuals

REQUIRED READINGS

- Kahane, Chapter 5, pp. 83-101
- Stuart Landon, Melville L. McMillan, Vijay Muralidharan and Mark Parsons, “Does Health-Care Spending Crowd Out Other Provincial Expenditures?” *Canadian Public Policy* 32:2 (June, 2006), pp. 121-142.

Session 5 – October 21: The Multiple Regression Model (partials and betas)

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.
<http://library.usask.ca/scripts/remote?URL=http://www.jstor.org/stable/3542599>
- Sohrab Abizadeh and John A. Gray, “Politics and Provincial Government Spending in Canada,” *Canadian Public Administration* 35:4 (1992), pp. 519-533.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1111/j.1754-7121.1992.tb00709.x>

ASSIGNMENT 3: MULTIPLE REGRESSION (DUE NOVEMBER 18)

Session 6: October 28: Mid-term Examination

Session 7 – November 4: Interaction Effects and Dummy Variables

REQUIRED READINGS

- Kahane, Chapter 5, pp. 83-101.
- Abdelaziz Testas, "Economic and Political Explanations of Algeria's Human Rights Violations," *International Journal of Human Rights* 8:4 (Winter 2004), pp. 399-411.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1080/1364298042000283567>
- 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.
http://library.usask.ca/scripts/remote?URL=http://www.sciencedirect.com/science?_ob=MiamiImageURL&_cid=272092&_user=1069128&_pii=S1053535703000155&_check=y&_origin=browse&_zone=rslt_list_item&_coverDate=2003-05-31&_wchp=dGLzVlk-zSkzk&_md5=bc6c2ffd9a04b0f6ae0288374f30fdef/1-s2.0-S1053535703000155-main.pdf

Session 8 – November 18: Diagnostics and Data Transformations (multicollinearity, outliers, non-normality, homoscedasticity, and nonlinearity)

READINGS

- Kahane, Chapter 5, pp. 79-83, Chapter 7.
- Robert W. Jackman, "The Politics of Economic Growth in the Industrial Democracies, 1974-80: Leftist Strength or North Sea Oil?," *The Journal of Politics*, 49:1 (Feb. 1987), pp. 242-256.
<http://library.usask.ca/scripts/remote?URL=http://www.jstor.org/stable/2131143>
- 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 Agriculture Economics* 26:1 (Feb. 1978), pp. 1-14.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1111/j.1744-7976.1978.tb02894.x>

Session 9 – November 25: The Multiple Regression Modeling: Choosing a Specification

READINGS

- Kahane, Chapter 6, pp. 110-119.
- Jeffrey E. Cohen, "Economic Perceptions and Executive Approval in Comparative Perspective," *Political Behaviour* 26:1 (March, 2004), pp. 27-43.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1023/B:POBE.0000022342.58335.cd>

- 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.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1017/S000842390606015X>

Session 10 – December 2: 1/0 Dependant Variables: Logistic Regression

READINGS

- Kahane, Chapter 7.
- 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. <http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1111/j.1540-6210.2007.00735.x>

ASSIGNMENT 4: LOGISTIC REGRESSION (DUE DECEMBER 15)

Session 11 – December 9: Time Series and End-of-Term Review

READINGS

- KAHANE, CHAPTER 5, PP. 103-118; CHAPTER 6, PP. 132-138.
- François Pétry, Louis M. Imbeau, Jean Crête, and Michel Clavet, "Explaining the Evolution of Government Size in the Canadian Provinces," *Public Finance Review* 28:1 (Jan., 2000), pp. 26-47.
<http://library.usask.ca/scripts/remote?URL=http://dx.doi.org/10.1177/109114210002800102>

REQUIRED READINGS

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

Leo H. Kahane, *Regression Basics* (Thousand Oaks: Sage, 2008).

We also use SPSS (Statistical Package for the Social Sciences) to run simple, multiple, and logistic regression. You will need to purchase a site licence from the Campus Computer Store.

SUPPLEMENTARY READINGS

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).

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 SPSS. Each student will also be responsible for presenting a summary of one of the various journal articles that will be discussed during the 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.

Assignment 1	Bivariate Regression-paper and pencil	10%
Assignment 2	Bivariate Regression-computer	10%
Assignment 3	Multiple Regression	15%
Assignment 4	Logistic Regression	15%
Article summary		10%
Mid-term examination		15%
Final examination		25%
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

Students in this course who, because of a disability, may have a need for accommodations are encouraged to discuss this need with the instructor and to contact Disability Services for Students (DSS) at 306-966-7273.

ACADEMIC INTEGRITY AND CONDUCT

Understanding and following the principles of academic integrity and conduct as laid out in the University of Saskatchewan's Guidelines for Academic Conduct is vital to your success in graduate school (available at http://www.usask.ca/university_secretary/council/reports_forms/reports/guide_conduct.php). 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 any faculty member and we can discuss your questions.