

**UNIVERSITY OF REGINA
JOHNSON-SHOYAMA GRADUATE SCHOOL OF PUBLIC POLICY**

GSPP 803: QUANTITATIVE METHODS

Instructor: Andrea Rounce

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Office Location: 110 – 2 Research Drive

Office Hours: Tuesdays 2 to 4pm

Term: Winter 2009

Time: Tuesdays/Thursdays 4:30 to 6:00

Room: Tuesdays: CL 312

Thursdays: ED 561

Calendar Description:

This course is a primer that exposes students to the statistical concepts and techniques used in 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:

The ability to both understand and use quantitative methodology is of great importance for work in public administration and public policy. In an era where there is much focus on the creation and use of an evidence base for decision-making, implementation, and evaluation, being able to both undertake quantitative work and critically assess existing quantitative analysis is vital. Understanding the assumptions behind quantitative analysis, the scope and breadth of quantitative work, and the promise and limits of this kind of analysis will be key goals for students in this course.

In order to build this understanding, the course will consist of interactive discussions, presentations, analysis of empirical work, applied analysis done in the computer lab, and written assignments. Linking theory with practice is an important element of the course, but we will emphasize the conceptual understanding of quantitative analysis and its application rather than on the math behind the tools themselves.

The course content is summarized on the attached outline and schedule.

Required Texts:

O’Sullivan, Elizabethann, Gary R. Rassel, and Maureen Berner. 2008. *Research Methods for Public Administrators*. Fifth Edition. New York: Longman.

Wagner, William E. III. 2007. *Using SPSS for Social Statistics and Research Methods*. Thousand Oaks, CA: Pine Forge Press.

Additional and Supplementary Texts:

Additional required and supplementary readings are available through UR Courses or will be distributed in class. Where possible, the required readings will also be available on reserve in the library.

Evaluation:

→ Lab-Based Assignments (short)			20%
Assignment 2	Research Design	Session 3-2 (Jan. 22)	
Assignment 1	Data Search	Session 4-2 (Jan. 29)	
Assignment 3	Measurement	Session 5-2 (Feb. 3)	
Assignment 4	Sampling	Session 6-2 (Feb. 12)	
Assignment 5	Tables/Graphics	Session 7-2 (Feb. 26)	
Assignment 6	Index Creation	Session 8-2 (Mar. 5)	
Assignment 7	Testing Hypotheses	Session 9-2 (Mar. 12)	
Assignment 8	Measures of Association	Session 10-2 (Mar. 19)	
Assignment 9	Correlation	Session 11-2 (Mar. 26)	
Assignment 10	Regression	Session 12-2 (Apr. 2)	
→ Paper-Related Assignments			
Assignment	Research paper proposal	Session 6-1 (Feb. 10)	10%
Assignment	Literature/data review	Session 7-1 (Feb. 24)	10%
Assignment	Article review	Session 11-1 (Mar. 24)	10%
→ Presentation of research paper		Sessions 13-1 & 13-2	10%
→ Final research paper		Session 13-1 (Apr. 7)	40%

Late Assignments:

Late penalties will be in operation except for documented medical reasons. There are no exceptions.

Penalties:	1 day	5 per cent
	2-4 days	15 per cent
	5-7 days	25 per cent

Assignments are not accepted after 7 late days except for documented medical reasons.

Students with Special Needs:

Students in this course who, because of a disability, may have a need for accommodations, are encouraged to come and discuss accommodations with the instructor, and to contact the Coordinator of Special Needs Services at 585-4631.

Academic Integrity and Conduct:

Ensuring that you understand and follow the principles of academic integrity laid out in the Graduate Calendar is vital to your success in graduate school (distributed in class and available at http://www.uregina.ca/gradstudies/calendar/policy_univ.shtml). 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 me and we can discuss your questions.

WEEK 1***Session 1-1 January 6*****Class: Introduction**

- Introduction to the nature, structure, and expectations of the course
- Quantitative methods, research, and analysis in Public Administration and Public Policy

Session 1-2 January 8**Lab: Theories of Quantitative Methodology**

- Conceptual foundations of quantitative research and methodology
- Limits of quantitative methodology

WEEK 2***Session 2-1 January 13*****Class: Ethics in Quantitative Research****Resources to Support Quantitative Research****Required readings:**

O'Sullivan, Rassel, and Berner. Chapter 8.

Supplementary readings:

O'Sullivan, Rassel, and Berner. Chapter 9.

Interagency Secretariat on Research Ethics. Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. Ottawa, ON: August 2005.

http://www.pre.ethics.gc.ca/english/pdf/TCPS%20October%202005_E.pdf

Gender

Statistics Canada. 2005. *Women in Canada 2005: A guide to understanding the changing roles of women and men in Canada*. Ottawa, ON: Author. Available online at <http://www.statcan.ca/english/ads/89-503-XPE/index.htm>

Economy

Statistics Canada. n.d. *Economic indicators, by province and territory (monthly and quarterly)*. Available at <http://www40.statcan.ca/l01/cst01/indi02a-eng.htm>

Organisation for Economic Cooperation and Development. n.d. *OECD Main Economic Indicators (MEI)*. Available at http://www.oecd.org/document/54/0,3343,en_2649_33715_15569334_1_1_1_1,00.html

Labour Force

Statistics Canada. n.d. *Summary Tables: Labour force, employed and unemployed, numbers and rates, by province*. Available at <http://www40.statcan.gc.ca/l01/cst01/labor07a-eng.htm>

Statistics Canada Labour Force Survey. Most recent information on the survey available at <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=3701&lang=en&db=imdb&adm=8&dis=2>

Education

Council of Ministers of Education Canada and Statistics Canada. 2007. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 2007*. Available at <http://www.statcan.gc.ca/pub/81-582-x/81-582-x2007001-eng.htm>

Organisation for Economic Cooperation and Development. 2008. *Education at a Glance 2008: OECD Indicators*. Available at http://www.oecd.org/document/9/0,3343,en_2649_39263238_41266761_1_1_1_3745_5,00.html

Health

Canadian Institute for Health Information. http://secure.cihi.ca/cihiweb/disPage.jsp?cw_page=home_e

Statistics Canada. Various. *Health Reports*. <http://www.statcan.gc.ca/ads-annonces/82-003-x/index-eng.htm>

Session 2-2 January 15

Lab: Research Process and Design

- Ensuring research design reflects the purpose of the research
 - Research for description
 - Research for explanation

Required readings:

O'Sullivan, Rassel, and Berner. Chapters 2 and 3.

WEEK 3

Session 3-1 January 20

Class: Research Process and Design cont'd.

Introduction to Canadian Community Health Survey Data Set

Session 3-2 January 22

Lab: Beyond 20/20

- Data Librarians Marilyn Andrews and Raye Quickfall will provide an introduction to Statistics Canada's statistical platform, Beyond 20/20

WEEK 4

Session 4-1 January 27

Class: Measurement

- Types of variables
- Constructing variables
- Assessing survey questions
- Reliability and validity

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 4.

Velez, Pauline and Steven D. Ashworth. The Impact of Item Readability on the Endorsement of the Midpoint Response in Surveys. *Survey Research Methods*, 1 no.1 (2007): 69-74. Available online at <http://w4.ub.uni-konstanz.de/srm/article/viewFile/76/54>

Wright, Bradley E., Lepora J. Manigault, and Tamika R. Black. Quantitative Research Measurement in Public Administration: An Assessment of Journal Publications. *Administration & Society*, 35 no. 6 (January 2004): 747-764.

Supplementary readings:

American Association for Public Opinion Research. *Best Practices for Survey and Public Opinion Research*. Available online at <http://www.aapor.org/bestpractices>

Saris, Willem E. and Irmtraud Gallhofer. Estimation of the effects of measurement characteristics on the quality of survey questions. *Survey Research Methods*, 1 no. 1 (2007): 29-43. Available online at <http://w4.ub.uni-konstanz.de/srm/article/viewFile/49/48>

Session 4-2 January 29

Lab: Introduction to SPSS and Measurement

- Introduction to the Statistical Package for the Social Sciences (SPSS), which will be used extensively throughout the rest of the semester.

Required readings:

Wagner III. Chapters 1 and 2.

Supplementary readings:

Franke, Sandra. 2006. *Measurement of Social Capital: Reference Document for Public Policy Research, Development, and Evaluation*. Ottawa, ON: Policy Research Initiative. Available online at

http://www.policyresearch.gc.ca/doclib/Measurement_E.pdf

WEEK 5

Session 5-1 February 3

Class: Sampling

- Purpose of sampling
- Types of sample design

Required readings:

O'Sullivan, Russel, and Berner. Chapter 5.

Giroux, Suzelle. Canadian Health Measures Survey: Sampling strategy overview. *Health Reports Supplement* 18. Catalogue no. 82-003-S (2007). Available in webct or online at <http://www.statcan.ca/english/freepub/82-003-SIE/2007000/article/10363-en.pdf>

Supplementary reading:

Tipping, Sarah and Gerry Nicolaas. In search of a population sampling frame for UK postal surveys. *Survey Methodology Bulletin Special Edition No. 58* (August 2006): 34-46.

Session 5-2 February 5

Lab: Sampling cont'd

Supplementary reading:

Wagner III. Chapter 7.

WEEK 6

Session 6-1 February 10

Class: Descriptive Statistics

- Normal distribution
- Describing variables

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 11.

Session 6-2 February 12

Lab: Descriptive Statistics

- Descriptive statistics for univariate analysis: frequency distributions, measures of central tendency, and variability

Lab: Displaying and Reporting Data and Findings

- Using tables, charts, and graphs
- Creating tables, charts, and graphs in SPSS
- Transferring objects into office software (Word, Powerpoint)

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 15 – particularly the section on tables and graphs (pp. 470-471).

Wagner III. Chapters 3, 4 and 10.

Mid-term Break February 16 to 20

WEEK 7

Session 7-1 February 24

Class: Analyzing Multiple Indicators: Index Creation

- Purpose of creating an index
- Factor analysis
- World Values Survey, Canadian Council on Learning, Human Development Index case studies

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 10.

Relevant websites:

World Values Survey <http://www.worldvaluessurvey.org/>

CCL's Composite Learning Index <http://www.ccl-cca.ca/CCL/Reports/CLI2007?Language=EN>

Human Development Index <http://hdr.undp.org/en/statistics/>

Session 7-2 February 26

Lab: Index creation

- Creating a simple index

Required readings:

Wagner III. Chapter 2 (pages 17-21).

WEEK 8

Session 8-1 March 3

Class: Relationships between Variables: Statistical Significance

- Types of hypotheses
 - Null hypotheses
- Analytical errors
 - Type I and Type II errors
- Measures of significance and comparing groups

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 12.

McNabb. Chapters 12 and 13.

Session 8-2 March 5

Lab: Relationships between Variables: Statistical Significance

- Methods for testing hypotheses

Required readings:

Wagner III. Chapter 8.

WEEK 9

Session 9-1 March 10

Class: Relationships among Variables: Measures of Association

- Correlation versus causation
- Measures of Association

Required readings:

Levin, Jack and James Alan Fox. 2004. Chapter 10 Correlation, pp. 213-228. In *Elementary Statistics in Social Research: The Essentials*. Boston: Pearson Education, Inc.

O'Sullivan, Rassel, and Berner. Chapter 13

Session 9-2 March 12

Lab: Relationships among Variables: Measures of Association

- Measures of association

Required readings:

Wagner III. Chapters 5 and 9.

WEEK 10

Session 10-1 March 17

Class: Bivariate Correlation and Simple Linear Regression

- Types of multivariate analysis
- Underlying assumptions
- Simple linear regression/bivariate regression

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 14

Meyers, Lawrence S, Glenn Gamst, and A.J. Guarino. 2006. Chapter 4A Bivariate Correlation and Simple Linear Regression. In *Applied Multivariate Research: Design and Implementation*, pp. 107-136. Thousand Oaks: Sage Publications.

Session 10-2 March 19

Lab: Bivariate Correlation and Simple Linear Regression

- Bivariate analysis, including regression and correlations

Required readings:

George, Darren and Paul Mallery. 2006. Chapter 15 Simple Linear Regression. In *SPSS for Windows: Step by Step 13.0 Update*. 6th Edition. Boston, MA: Pearson Education.

Wagner III. Chapter 5.

WEEK 11

Session 11-1 March 24

Class: Multiple Regression and Logistic Regression

- Multiple Regression
- Logistic Regression
- Data suitable for each approach

Required readings:

O'Sullivan, Rassel, and Berner. Chapter 14

Meyers, Lawrence S, Glenn Gamst, and A.J. Guarino. 2006. Chapter 5A Multiple Regression. In *Applied Multivariate Research: Design and Implementation*, pp. 147-196. Thousand Oaks: Sage Publications.

Meyers, Lawrence S, Glenn Gamst, and A.J. Guarino. 2006. Chapter 6A Logistic Regression. In *Applied Multivariate Research: Design and Implementation*, pp. 221-240. Thousand Oaks: Sage Publications.

Session 11-2 March 26

Lab: Multiple Regression and Logistic Regression

Required readings:

Wagner III. Chapter 5.

WEEK 12

Session 12-1 March 31

Class: Other Quantitative Methods

Session 12-2 April 2

Lab: Other Quantitative Methods

WEEK 13

Session 13-1 April 7

Class: Presentations

Session 13-2 April 9

Lab: Presentations