

SOC 300H1: APPLICATIONS OF QUANTITATIVE METHODS

University of Toronto, Department of Sociology

Fall Semester, 2013

Monday 12-2pm FE 36, Wednesday 4-6pm FE 36 (725 Spadina Ave.)

Instructor: Naomi Lightman (naomi.lightman@mail.utoronto.ca).

Teaching Assistant: James Jeong (junmin.jeong@mail.utoronto.ca).

Prerequisites: The prerequisite to take SOC300H1 is SOC202H1 or equivalent, plus an additional SOC course at the 200 or higher level. Students without this prerequisite can be removed at any time and without notice.

Course Description: This is a hands-on course designed to give students experience analyzing quantitative data from the census and large sample surveys. Each two-hour time slot will consist of a one-hour lecture focused primarily on the theoretical understanding of concepts and a fifty-minute tutorial using a statistical program, SPSS, that will allow you to apply your knowledge.

Course Goals: Students who complete this course will know how to conduct and interpret multivariate analysis. They will be able to perform ordinary least squares and binary logistic regression with interaction terms and will have an applied understanding of how to communicate these results concisely and effectively.

Research Component: The class will focus on data from nationally representative sample surveys conducted by Statistics Canada and data from the Census of Canada. Public Use Microdata Files (PUMF) are available on a “virtual walk-in basis” for University of Toronto (U of T) students. Students will be shown in class how to gain access to this data. Do not share the data with anyone outside the U of T community.

Office Hours:

The teaching assistant will hold regularly scheduled office hours in Rm. 225 E at 725 Spadina Avenue on Wednesday from 2-4pm. If you have a time conflict and cannot make it to the scheduled office hours, please email junmin.jeong@mail.utoronot.ca to set up an appointment.

The instructor will hold regularly scheduled office hours in Rm. 225 A at 725 Spadina Avenue on Mondays from 10am-12pm. If you have a time conflict and cannot make it to the scheduled office hours, please email naomi.lightman@mail.utoronto.ca to set up an appointment.

Evaluations: Grades will be based on the following four components:

Assignment 1 – <i>Bivariate Analysis: Creating an Index and Interpreting a Crosstab, ANOVA and Chi-square</i>	(Due: October 9, 2013).....	15%
Mid-Term Examination (October 23, 2013, Room FE 36).....		30%
Assignment 2 – <i>Multivariate Analysis: Correlation and OLS Regression</i>	(Due: November 6, 2013).....	15%
Paper Proposal For Final Assignment	(Due November 13, 2013).....	15%
Final Assignment – <i>“Mini Journal Article”: Binary Logistic Regression and Interactions</i>	(Due: December 4, 2013, 4:30pm).....	<u>25%</u>
		100%

Required Texts:

- Haan, Michael. *Introduction to Statistics for Canadian Social Scientists (Second Edition)*. 2013. Oxford

University Press Canada. This includes “how to” sections on SPSS. It focuses on nationally representative samples from Canada most of which are available online from the U of T data library.

- Jaccard, James and Robert Turrisi. 2003. *Interaction Effects in Multiple Regression* (Second Edition). Sage University Papers Series on Quantitative Applications in the Social Science. This booklet provides a good background on regression analysis with interaction effects.

The texts are available for purchase from the University of Toronto bookstore, 214 College Street.

Required Online Reading Materials:

- Selected journal articles will be posted on Blackboard as the course progresses to provide examples of quantitative analysis in practice. Students are expected to read these and familiarize themselves with the content.

Required Supplies/Software:

- You will require a USB flash drive to store your work or download data during class.
- You will require a basic scientific calculator to do calculations by hand (This should cost no more than \$20).
- You will require access to SPSS for assignments.

Recommended (but not required) additional texts for supplementary assistance:

Field, Andy. *Discovering Statistics Using IBM SPSS Statistics. SPSS for Windows Step by Step: A Simple Guide and Reference. (Fourth Edition)*. 2013. Sage Publications Ltd.
Freeman, Pisani and Purves. *Statistics (Fourth Edition)*. 2007. W.W. Norton & Company, Inc.

Green, Samuel G. and Neil J. Salkind. *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data. (Sixth Edition)*. 2012. Pearson Education International.

Härdle, Wolfgang and Léopold Simar. *Applied Multivariate Statistical Analysis. (2003)*. West Virginia University.

<http://www.stat.wvu.edu/~jharner/courses/stat541/mva.pdf> (Free!)

Wager, William E. III *Using IBM SPSS Statistics for Research Methods and Social Science Statistics. (Fourth Edition)*. 2013. Sage Publications.

Computing: The course will use SPSS to analyze data. You can access computers with SPSS at Robarts in the Map and Data Library on the 5th floor and at OISE in the Education Commons on the 3rd floor. Please check online for specific time availability.

Many students may desire to use SPSS on their personal computer. Copies of the student version of the software (\$60+tax) can be obtained from the Scotiabank Information Commons on the first floor of Robarts Library. SPSS can also be purchased online at software.utoronto.ca.

Course Web Site: The course website prepared on the Blackboard system will contain the course syllabus, all assignments, required journal articles, links of interest, and course announcements. Students are responsible for the content of all course materials and for checking their official utoronto.ca email address regularly. Emails sent to the utoronto.ca email address on file are deemed to have been received. Discussion boards will be enabled on the course web site. All students using these boards are expected to behave respectfully towards their classmates.

Attendance: Attendance at all lectures and tutorials is required. Students are responsible for all material presented in class as well as readings. Students who are unable to attend class on a given day are responsible for obtaining notes from their classmates on all material covered, as well as information regarding any administrative announcements that may have been made. (Administrative announcements

will normally also be posted on Blackboard).

Communication and Deadline: Students must hand in all assignments at the beginning of class on the day the assignment is due (4pm on Oct. 9; 12 pm on Nov. 18). The final assignment must be submitted in hard copy, at the Department of Sociology, Room 225, in mailbox #3, with the date and time stamp found next to the mailbox, by 4:30pm on December 4, 2013. All late assignments must be deposited (in hard copy) in mailbox #3 in Room 225 with the date and time stamp; you must e-mail the instructor that the assignment is in the box so that it can be retrieved. A penalty of 5% per day will be deducted for all late assignments.

Accessibility Needs: If you require accommodations or have any accessibility concerns, please visit <http://studentlife.utoronto.ca/accessibility> as soon as possible.

Preparation and Participation: Students are expected to complete all assigned readings in advance of the class period for which they are assigned and to attend class prepared to discuss the assigned readings.

Plagiarism: Cheating and misrepresentation will not be tolerated. Students who commit an academic offence face serious penalties. Avoid plagiarism by citing properly: practices acceptable in high school may prove unacceptable in university. Know where you stand by reading the "Code of Behaviour on Academic Matters" in the Calendar of the Faculty of Arts and Science (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>).

Make-Up Tests: Students who miss the midterm will receive a grade of zero unless, within three days of the missed test (by 5 pm, October 26), students who wish to write the make-up test give their TA a written request for special consideration which explains why the test was missed, accompanied by proper documentation from a physician or college registrar (see below). A request should be accompanied by contact information (the student's telephone number and email address) so the date, time and place of the make-up test can be communicated to the student. A student who misses the midterm and the subsequent make-up midterm for a valid reason will not have a third chance to take the midterm. Instead, the grade assigned for the missed midterm will be the same as the average grade the student earns for the other assignments in this course.

Documentation from your Physician or College Registrar: If you miss the midterm or a paper deadline, do not contact the instructor or TA unless you have followed the steps described here. Telling the instructor or TA why you missed a deadline or a test will not be considered. Only written documentation will be considered.

In case of illness, you must supply a duly completed Verification of Student Illness or Injury form (available at www.illnessverification.utoronto.ca). A doctor's note is not acceptable. The form must be placed in a sealed envelope, addressed to the instructor, and submitted with your work at class or to the TA during his office hours.

If a personal or family crisis prevents you from meeting a deadline, you must get a letter from your college registrar (it is a good idea anyway to advise your college registrar if a crisis is interfering with your studies). The letter must be placed in a sealed envelope, addressed to the instructor, and submitted with your work at class or to the TA during his office hours.

COURSE OUTLINE AND REQUIRED READINGS

WEEK 1: LOCATING QUANTITATIVE DATA

September 9 - Course overview and introduction to SPSS

September 11 - Levels of measurement, rates, ratios and percentiles

Reading: Haan, Chapters 1-3 (This should be a review of basic material from SOC 200)

WEEK 2: REVIEW OF UNIVARIATE STATISTICS

September 16 - Probability theory and measures of central tendency and dispersion

September 18 - The normal curve and building an index

Reading: Haan, Chapters 4-6 (Further review of basic material covered in SOC 200)

Journal article: Putnam, R. D. (2001). "Social capital: Measurement and consequences." *Canadian Journal of Policy Research*.

WEEK 3: THE NORMAL CURVE AND SAMPLING

September 23 - Standard deviations, standard scores, and sampling

September 25 - The t -distribution, testing hypotheses and recoding variables

Reading: Haan, Chapters 7-10

WEEK 4: BIVARIATE STATISTICS - MEASURES OF ASSOCIATION

September 30 - The t -test, and measures of association for nominal and ordinal data,

October 2 - Measures of association for interval/ratio level data, ANOVA

Reading: Haan, Chapters 11-13

WEEK 5: SCATTERPLOTS AND CORRELATIONS

October 7 - Scatterplots and correlations

SOC 300H1: APPLICATIONS OF QUANTITATIVE METHODS

University of Toronto, Department of Sociology

Fall Semester, 2013

Monday 12-2pm FE 36, Wednesday 4-6pm FE 36 (725 Spadina Ave.)

5

October 9 –Review of bivariate statistics and observed patterns of association

**** EXERCISE 1 IS DUE THE BEGINNING OF CLASS, ON OCT. 9 AT 4 pm.**

Reading: Haan, Chapters 14-15

Journal Article: Warren, C. (Spring 2003). "Pockets of belief: Religious attendance patterns in Canada." *Canadian Social Trends*.

WEEK 6: PRESENTATION OF DATA

no class on October 14th due to Thanksgiving

October 16 – Using SPSS for graphing, interpretation and presentation of results

Reading: Review Haan, Chapters 1-15

WEEK 7: MID TERM REVIEW AND THE LOGIC OF MULTIVARIATE ANALYSIS

October 21 – Preparation for mid-term and review of content covered to date.

October 23 – R square and estimating a linear regression line.

Reading: Haan, Chapter 16

WEEK 8: MULTIPLE REGRESSION ANALYSIS – MODELING CONTINUOUS OUTCOMES

October 28 – ****MIDTERM**** (Held in FE 36)

October 30 – Dummy variable coding and interpreting dummy variables in a regression equation

Journal Article: Fong, E. and R. Wilkes (2003). "Racial and Ethnic Residential Patterns in Canada." *Sociological Forum*. 18(577-602).

WEEK 9: REGRESSION DIAGNOSTICS

November 4 – Estimating a multivariate model

(Note: November 4th is the final day to drop the course without academic penalty)

November 6 – Modelling continuous outcomes

**** EXERCISE 3 IS DUE THE BEGINNING OF CLASS ON NOVEMBER 18 AT 12 pm.**

Reading: Haan, Chapter 18

SOC 300H1: APPLICATIONS OF QUANTITATIVE METHODS

University of Toronto, Department of Sociology

Fall Semester, 2013

Monday 12-2pm FE 36, Wednesday 4-6pm FE 36 (725 Spadina Ave.)

7

WEEK 10: MODELING BINARY OUTCOMES WITH LOGISTIC REGRESSION

November 11th (&12) – Class Break – No Class

November 13: Selecting and interpreting a preferred model

** PAPER PROPOSAL IS DUE AT THE BEGINNING OF CLASS ON NOVEMBER 18 AT 4 PM.

Reading: Haan, Chapter 17

Journal Article: Reitz, J. G., R. Banerjee, et al. (2009). "Race, religion, and the social integration of new immigrant minorities in Canada." *International Migration Review* 43(4): 695-726.

WEEK 11: SPECIFYING CONDITIONS

November 18 – Estimating regression models with interaction terms.

November 20: Interpreting and analysing models with interaction terms, weighting of variables

Reading: Jaccard and Tursi, Chapter 1

WEEK 12: MISSING DATA AND DATA VISUALIZATION

November 25: Strategies for dealing with missing data

November 27: Data Visualization and infographics. Guest lecture from the founders of Department of Unusual Certainties (<http://departmentofunusualcertainties.wordpress.com/>) and The Mission Business (<http://www.themission.biz/>)

Reading: Haan, Chapter 19, Jaccard and Tursi, Chapter 2

WEEK 13: FINAL CONSIDERATIONS

December 2: Catch up and course wrap up, extra help with final assignment

Reading: Review Jaccard and Tursi, Chapters 1-2

** The final assignment is due December 4 by 4:30pm. Please drop off a hard copy in mailbox #3 in Room 225 of the sociology building. Please use the automatic date/time

stamp machine before placing your assignment in the mailbox. A penalty of 5% per day will be deducted for all late assignments.