

Ryerson University – Sociology
SOC 483: Advanced Research and Statistics

Prerequisites: SOC 481

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Lecture: Tuesdays, 1:10PM to 3PM, POD 358
Stats Labs: Wednesdays, 9:10AM or 10:10AM, POD 356 (Arts Lab)
Office Hour: Wednesdays, 11AM to Noon, or by appointment

COURSE DESCRIPTION

This course is designed to build upon the student's existing research and analysis skills by focusing on more advanced topics in social data analysis. Our approach emphasizes statistics as tools for solving research problems associated with understanding urban life rather than as an end in itself. The course provides a hands-on approach to statistics through the use and analysis of actual census tract data. The city and urban issues remain our focus as we explore modern statistical applications.

TEXTBOOK:

Your text from last year: Michael Haan, *Statistics for Canadian Social Scientists* (Toronto: Oxford) AND online statistics seminars AND course handouts

Course Software and Datasets

SPSS (available in computer labs or “virtual apps” on campus).
Various Statistics Canada public-use data samples, especially the 2007 Survey of Household Spending, the 2005 General Social Survey of Time Use, or the 2001 Census of Canada.

COURSE INTRODUCTION

This course builds upon your knowledge of qualitative research, survey design, and introductory statistical techniques. In short, here we will learn how to analyze more than two variables at a time, isolating and “holding constant” supplementary factors “behind” or “parallel with” the initial bi-variate correlations and cross-tabulations you have learned already. As in any course, interpretation and analytic essays are central, but now you will include statistical results. You will analyze your own statistics, composing a major essay on a topic of your choice in relation to other research on the topic: theoretical, qualitative, and others' published prior results. The new skills allow you to confidently and critically think and write about quantitative data.

The topics, skills, and knowledge build cumulatively each week. Attending classes and computer labs will help you grasp the concepts needed to work toward the final assignment. The course is designed to ease your anxiety about the new language and skills involved in doing statistics.

REQUIRED WORK AND GRADING STRUCTURE:

Component	Format	Value	Dates
Participation & Attendance	Class and lab participation and attendance	10%	Weekly
Test	In-Class Test of baseline of required review of statistical techniques	15%	Week 5
Progress reports	Summarizing your project’s progress, reporting on your Dataset and Results	3 x 15% = 45%	Weeks 6, 10, and 12
Major Project Essay	10 to 12 pages writing, plus your tables of your chosen statistics	30%	Due in Exam period (TBA)

NOTE: about 35% of grade is known by drop-date in Week 9.

The key assignment for the course is the major essay. All of the lectures, both tests, the computer lab work, and proposal, all of these are designed specifically to ensure you are ready for this final assignment.

Participation and Attendance in Class and Lab (weekly)10%

Test (review of bi-variate technique, short interpretive answers, 1 hour, in-class).....15%

Bi-Weekly Progress Reports 3 x 15% = 45%

Late Penalty: 1.5 mark deduction (out of 15) per day late.

Major Project Essay (10 to 12 pages, plus tables of statistics) 30%

Late Penalty: 3 mark deduction (out of 30) per day late.

YOU MUST COMPLETE THE FINAL PROJECT TO PASS THE COURSE.

ACADEMIC INTEGRITY

As in all courses, you are expected to follow the Student Code of Conduct. Specifically for Research Methods, plagiarism includes inventing data or copying others’ results. Read about the Code, issues around proper citation, cheating, and plagiarism, and consider your student rights and responsibilities at the following Ryerson website: www.ryerson.ca/academicintegrity

ACCESS CENTRE

Ryerson provides much support for students with physical & learning disabilities. Students requiring assistance and accommodations for their circumstances should introduce themselves immediately to discuss a plan for the course. Find out more at the following Ryerson website: www.ryerson.ca/accesscentre

WRITING CENTRE (Help in essay composition): www.ryerson.ca/writing-centre

STUDENT SERVICES (Various Counseling and Support): www.ryerson.ca/studentsservice

SERVICE LEARNING OPTION

The Faculty of Arts is continuing Service Learning, which differs from volunteer work and internships because priorities are set by both community needs and course requirements equally.

You are all invited to apply to be part of two small groups (each of 4 or 5 students) doing volunteer research for Mainstay Housing Service, which provides housing and promotes social connections for people with mental health issues.

DEADLINE TO APPLY: Submit the completed form to Prof. Moore or Reena Tandon, Service Learning Coordinator, by Noon on Wednesday, January 19th. Students will be selected by Monday, Jan. 24.

Mainstay has provided a research question about the cumulative effects of physical illness, mental health problems, tenuous housing, financial insecurity, and weak social networks. As a group (working independently, checking in at times with Prof. Moore), the service learning students will co-author a report and present the results to Mainstay in April.

Instead of the Major Essay on a topic of your choice, Service Learning students will:

Co-Author a Research Report (Prof-, peer-, and self-evaluated participation).....**20%**

Sole-Author a Reflective Paper about the research results and process (7-8 pages)**10%**

The Reflective Paper will review how the group turned Mainstay's initial question into a statistical analysis, and then translated the results into a report. One key aspect will be discussing how statistics and data analysis is important for non-profit, social service advocacy.

Who should apply? Anyone (not just those who participated in Fall SOC 481) who is keen to work in a group; willing to give up choosing your own your research topic; interested for career reasons or out of activism to apply your statistical skills to community service; and curious to write and research about why statistics are an important part of social advocacy.

The Service Learning option will involve about two extra hours per week above what is required of other students. You will need to visit Mainstay to learn about what they do, and later to present the results. Beginning in February, this group must meet regularly in addition to regular class and lab, including consulting with Prof. Moore. You must attend an orientation session, where you will complete a Student Agreement Form, an Assumption of Risk and Indemnity Agreement, and an Emergency Contact form.

Service Learning students still do the three progress reports, related to the research for Mainstay but each done independently before combining results as a group.

January 19:Applications Due (see Blackboard Documents for application)

February 2 or 3:General Service Learning Orientation

February 9 (Wed) 9AM:Mainstay Orientation visit (location t.b.a)

Late March:Mainstay initial results consultation visit

Late April:Mainstay final results presentation visit

Choosing a topic for your major project:

You may choose any topic. The most important factor is that you are interested in researching the topic, including prior, published theoretical, qualitative, and other statistical results about it.

Because you will need to research theoretical and qualitative publications about the topic, you are *encouraged* to choose themes related to readings in other courses (urban studies, diversity, media studies). Your statistical analysis and essay for this course may not end up useful for other courses, but it will obviously be helpful to have the background reading and research overlap.

You should pay attention immediately to whether there are relevant, available Statistics Canada datasets and appropriate variables. In particular, your primary Dependent Variable (the phenomenon you are predicting) needs to be a continuous variable with a relatively wide range of values (income, spending, distances traveled, hours spent at an activity, etc.) At least one Independent Variable (one of the underlying causes) also needs to be a continuous variable. Keep this in mind from the very start of your research.

You are **strongly** encouraged to use the 2008 Survey of Household Spending (which measures annual expenses on hundreds of consumer goods and services) OR the 2005 General Social Survey on Time Use (which measures the daily duration spent at places and at activities). If you see another survey that addresses a more specialized topic you are particularly interested in, you can use the other survey, but you are strongly encouraged to check with Prof. Moore early in the process of downloading and coding to ensure the dataset is adequate for the course techniques.

I would recommend starting with an INTEREST in a topic, rather than starting with the specific variables. On a conceptual level, then, how does your topic translate into types of consumer spending or time spent doing activities. THEN turn to the Surveys of Household Spending or Time Use and begin investigating what types of variables allow you to measure your topic.

Demographic differences (income, gender, ethnicity, age, education) will apply to any topic – rather than being your starting point. Also, both surveys have older versions that might allow you to compare two points in time (if you are interested and have time to repeat the SPSS analysis for a second dataset separately).

Week 1

Class (Jan. 11): Why advanced stats? Interrelations among many variables

Lab (Jan. 12): Downloading Datasets, find at least two continuous variables in the dataset

Week 2

Class (Jan. 18): Review of Variable Distributions, Bi-Variate comparisons

Lab (Jan. 19): Running Cross-Tabs (chi-square tests)

Haan: Parts of Chapters 12 and 13.

Week 3

Class (Jan. 25): Review of Normal Distribution, Confidence Intervals and Significance

Lab (Jan. 26): Running One-Way ANOVA means comparisons, with Confidence Intervals

Haan: Parts of Chapters 15 and 16.

Week 4:

Class (Feb. 1): Review of Correlations and Bi-Variate Regressions; Variable Summary tables

Lab (Feb. 2): Running a Correlation matrix, a Scatterplot, a Regression

Haan: Parts of Chapter 14.

NOTE: You should have chosen a topic and begun some library research by now.

Week 5 – TEST on bi-variate statistics

Class (Feb. 8): Mid-term Test of minimal baseline, bi-variate statistics

Lab (Feb. 9): Displaying data in Variable Summary Table for Project descriptive statistics

Week 6: DUE Wednesday by 4PM: Progress Report (3-4 pages + variable summary table)

Class (Feb. 15): Introduction to Multiple Regression, Factor Analysis

Lab (Feb. 16): Running a Factor Analysis, Re-coding Dummy Variables for Multiple Regression

Progress Report 1: Both a Project proposal, which theoretically introduces the topic and review some first research on it, and also first descriptive results from the dataset. Review your conceptual model as you describe the details and distributions of the main variables (as well as any problems, outliers, missing values, etc.), and review some of the bi-variate relationships between variables and their statistical significance. **INCLUDE** a Variable Summary table.

Midterm Break (Feb. 21-25)

Week 7

Class (Mar. 1): More on Multiple Regression

Lab (Mar. 2): Variable diagnostics, recoding to mid-points, putting in “sysmis” if needed

Week 8:

Class (Mar. 8): Linear Multiple Regression - Analysis and Design

Lab (Mar. 9): FORMAL LAB IS CANCELLED (Lab is open and peer mentors available)

Week 9

Class (Mar. 15): Linear Multiple Regression – R^2 change and diagnostics; Displaying Results
Lab (Mar. 16): Loading Variables in Blocks, Displaying Results

Week 10 DUE Wed. by 4PM: Progress Report 2 (3-4 pages + linear regression table)

Class (Mar. 22): Introduction to Logistic Regression
Lab (Mar. 23): Generating Logistic Regress Results

Progress Report 2: Revise your conceptual and theoretical interpretation given your linear regression results. Review your initial Linear Multiple Regression model and preliminary results. Are there any non-normal continuous variables that will have to be transformed? Any problems, surprises? Compare your model and results with publications that use similar data.

Week 11:

Class (Mar. 29): More on Logistic Regression diagnostics, Displaying Results
Lab (Mar. 30): Displaying Logistic Regress Results

Week 12: DUE Wednesday by 4PM: Progress Report 3 (3-4 p + logistic regression table)

Class (Apr. 5): Adding Complexity to your Regression design, comparing two regressions, two datasets... Ways to improve and redesign your analysis now that the basic technique is covered.
Lab (Apr. 6): Comparing between regressions; between datasets

Progress Report 3: Revise your conceptual and theoretical interpretation given your logistic regression results. Interpret a Logistic Regression related to your dataset. Assess how important and useful these are compared to the ordinary linear multiple regression you have been working on before. Consider comparing two Logistic regressions.

Week 13

Class (April 12): General Advice for writing up your major project. Individual questions.
Lab (Apr. 13): Individual trouble-shooting, review of final project requirements

EXAM PERIOD: Major Project Essay is Due.

EXACT DATE to be determined based on exam schedule and project deadlines in other courses.