

Ryerson University – Sociology
SOC 483: Advanced Statistical Modeling

Prerequisite: SOC 481

Instructor: Paul S. Moore, psmoore@ryerson.ca, 416 979 5000 x 2604
Office: Sociology Department – Jorgenson JOR 306
Lecture: Wednesdays, 3:10PM to 5PM, VIC 203
Stats Labs: Thursdays, 10AM, or 11AM, or Noon, POD 351 (“New” Lab)
Office Hour: Wednesdays, 1:30PM to 2:30PM, or by appointment

Lab Instructor: Rebecca Hii, PhD student, Policy. rebecca.hii@ryerson.ca
Peer Mentors: Melissa Lopez and Tommy Yeung, 4th-year Sociology Students

COURSE DESCRIPTION:

This class will build upon your existing research and analysis skills by introducing more advanced topics in multivariate modeling. The emphasis will be placed on those analysis techniques most often used to analyze large-scale data sets within sociology, namely ordinary least squares (OLS) and logistic regression. Class lectures will focus on how statistical techniques can be used to understand urban life and social issues, and will not emphasize the mathematical basis of statistical techniques. While annotated versions of the class slides will be provided in advance, it is your responsibility to attend class and write additional notes explaining the material in a way that makes sense to you. The lab sessions will provide you with the opportunity to put these skills into practice.

To be successful in this class, you must attend all classes, complete all lab assignments, begin assignments well in advance of the due date, prepare for the tests, and seek assistance from the instructor when needed.

When you successfully complete this class, you will have the skills necessary to conduct a thoughtful and critical analysis of quantitative data. Specifically, you will be able to:

- Develop measures of independent, dependent & control variables for large-scale data sets
- Construct, interpret and assess multivariate regression models appropriate for dichotomous and continuous dependent variables
- Communicate results of a quantitative data analysis in an interesting and accessible way
- Understand the possibilities and constraints of using large-scale data sets to answer socially-relevant research questions

TEXTBOOK:

IBM-SPSS (available in computer labs or “virtual apps”); Statistics Canada public-use datasets.
Linneman, Thomas. 2011. Social Statistics: The Basics and Beyond. New York, NY: Routledge.

This is the same book used in SOC 411 (Introduction to Quantitative Data Analysis). The book will cover most of the topics discussed in the class, but not all. You are encouraged to consult other reputable materials to enhance your understanding of the topics discussed.

EVALUATION:

Component	Format	Value	Dates
Lab Assignments	Submitted In-Lab, no make-ups	10%	Weekly
Review Test	In-Class Test of baseline of uni- and bi-variate statistical techniques	20%	In Class, Feb 5
Proposal for Research	Design a study for an agency, begin research, choose dataset & variables	15%	Friday, Feb 28, Noon
Final Research Report	Summarizing your multi-variate analysis, reporting and display results	25%	In Class, April 2
Final Exam (cumulative)	Multiple-choice and short-answer based on examples	30%	In Exam Period

Schedule of Topics and Assigned Textbook Chapters (updated Feb 24, but subject to change):

Date	Class Topic	Reading
Jan. 15	Introduction to the course; measurement	Chapter 1
Jan. 22	Univariate analysis & Cross-Tabs	Chapters 2 and 3
Jan. 29	Bivariate regression	Chapters 7 and 8
Feb. 5	REVIEW TEST	NO LAB
Feb. 12	(Research Report Instructions Discussed this week)	None
Feb. 19	Reading Week	No lab/readings
Feb. 26	Factor Analysis / Reference Grouping (Dummy variables)	None / Chapter 9
Mar. 5	Nested Regression and R^2 change	Chapter 10
Mar. 12	Logistic Regression	Chapter 13
Mar. 19	Scales and measurement / Filters for Sub-Group Analysis	None
Mar. 26	Standardizing coefficients / Analyzing missing cases	Chapter 11 / None
Apr. 2	Interaction effects	Chapter 12
Apr. 9	Exam review	NO LAB

NOTE: about 40% of grade is known by drop-date in Week 9.

Review Test

The first three weeks of the semester will review concepts from SOC 411 and SOC 481. The test will be primarily multiple choice and short answer format. This is closed book test. You will be given the full class time (1 hour and 50 minutes) to write the test. Students who do not perform to a satisfactory level (i.e. 60%) on the test are strongly advised to meet with the professor and pursue remedial exercises. Review test marks will be posted on Blackboard.

Lab Assignments

With the exception of weeks 4 and 12, there will be a short lab assignment each week. The assignment must be completed and submitted during the lab time. Each assignment will be marked on a pass/fail basis. You must work on your lab independently to receive the credit. There are ten labs scheduled throughout the semester: each lab assignment is worth 1% of the final grade. All lab-related questions should be directed to the lab instructor.

Research Proposal / Research Report

Full information on these assignments will be provided soon. We will be working with three social agencies and media groups, and your research reports will tackle their research questions.

Final Exam

A final exam will be during the exam period. This exam will cover all the material discussed in the course, including the material covered on the review test. The exam will consist of multiple choice and short answer questions. This is a closed book exam. You will be given 2 hours to complete the exam. You do not need to pass the final exam to pass the class.

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. You can work together, but your submitted assignments must be your own, individual work. 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/writingcentre

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

COMMUNITY-BASED RESEARCH PROPOSAL (DUE: FRIDAY, NOON, FEB 28, 2014)

You will assume the role of a research consultant who conducts research for not-for-profit organizations and community groups or businesses. The Proposal starts with some preliminary research to learn about the organization's mandate, the population they serve and the programs they offer.

10am Lab: OMNI Television, media for multi-cultural urban Canada (Ontario, Alberta, BC).

See <http://www.omnitv.ca/on/en/shows/> for a list of all the shows, in all languages, they offer.

Research Question: How will social media and online media change how OMNI broadcasts to multi-lingual, multi-cultural Canada?

Dataset: General Social Survey 2010: Time-Stress (has leisure & media time measures; has immigration and language measures; has basic demographic variables).

11am Lab: Kurdish House, Settlement House for Kurdish refugees, immigrants, and descendents.

See <http://kurdishhouse.com/> for more information on their mission and activities in the GTA.

Research Question: How do West & Central Asian immigrants to Canada compare on settlement issues such as educational and occupational attainment?

Dataset: Census of Canada 2006: Public-Use data (has very finely measured immigration, language, ethnicity measures, as well as demographics and can also isolate urban areas from each other).

Noon Lab: Second Harvest, Bridging the Gap between Surplus Food with Hungry People

See <http://secondharvest.ca/> for its programs, mission statement and other information.

Research Question: How is most likely to volunteer or donate? How can Second Harvest target them?

Dataset: General Social Survey 2010: Giving, Volunteering & Participating (has measures of time, frequency and amount of charitable donations and volunteering, as well as basic demographics and some grouped measures of language, ethnicity, immigration; cannot isolate GTA or urban/rural).

Please note: Your role as a research consultant is hypothetical at this point. You are not permitted to contact the organization for any reason relating to your work in this class.

The research proposal is to be written as a formal proposal to the organization. In the proposal, you should outline:

- Summarize why this research question is important to the organization (½ to 1 page)
- How you will answer the question (1 – 1 ½ pages)
 - Describe the data set that you will use
 - Define the population that you will use
 - Provide conceptual and operational definitions of the variables in your analysis
 - Provide a list, and an initial “variable summary table” of your variables

The research proposal must conform to the following guidelines:

- The proposal must be 2 to 3 pages, and your variable summary table.
- All assignments must be typed and double-spaced, 12 pt Times Roman. Number each page.
- All assignments must be stapled. Do not use report covers, duotangs or binders.
- If you reference additional research, use ASA or APA style within-text citations and a complete reference list at the end of the paper. You are not required to include additional research, but it may be helpful, and it will be important for the final report later.
- All assignments must include a title page that includes your full name, your student number, the course code and section, the instructor's name and the date submitted.

This proposal is due, as a print copy in the Soc Dept Essay Box by Noon on Friday, February 28th, 2014. Proposals handed in on Friday afternoon or later will have a late penalty applied of ½. mark per day.

RESEARCH REPORT (DUE IN-CLASS ON WED. APRIL 2, 2014)

Complete the research project that you proposed in February. The report provides an overview of the research you conducted, including the methods of analysis and an interpretation of the results. You must demonstrate that you can conduct an analysis that is technically advanced, while communicating the results of the analysis in a way that is accessible to those with limited statistical background.

Please note: Your role as a research consultant continues to be hypothetical, and you are not to contact this organization for any reason relating to your work in this class. However, several of the top-graded reports will be presented to the community group to consult.

Guidelines

The research report must conform to the following guidelines:

- The report must be 6-7 pages in length, plus an updated variable summary table, and a multi-variate regression result table, plus a reference list.
- All assignments must be typed and double-spaced, 12 pt Times Roman. Number each page.
- All assignments must be stapled. Do not use report covers, duotangs or binders.
- When referencing, you must use ASA or APA referencing style within-text citation and a complete reference list at the end of the paper. You are required to include additional research, at least two examples of related or similar research, on the same topic or using the same data.
- All assignments must include a title page that includes your full name, your student number, the course code and section, the instructor's name and the date submitted.

Research Report Format

The paper should be organized into the following sections:

- Introduction (about 1 page)
 - Explain the research question that you will answer and why this research question is of interest and importance to the organization
- Methods (about 2 pages, plus your Variable Summary Table)
 - A description of the data set, the survey population, sample size, response rates
 - The variables that you will use and a concise description of how they are measured
 - A consideration of how any missing data will affect your results
 - Explain multi-variate regression, in general and how to interpret the results
 - Explain your specific model for your linear or logistic regression)
- Multi-Variate Regression Results (about 1 – 1.5 pages, plus your Regression Results Table)
 - Summarize Key Results, both things significant and not significant
 - Provide correct and interesting interpretations of the key elements of your model
- Discussion and Conclusion (1 – 1.5 pages, plus Reference List at the end)
 - Explain how insight gleaned from your analysis could be used by the organization
 - Consider any limitations of your analysis
 - Consider some areas of future research that would build on this research

This proposal is due in class on April 2nd, 2014. Reports handed in after class will be considered late.