**SOCIOLOGY 4FF3: APPLICATIONS OF QUANTITIATIVE METHODS IN THE SOCIAL SCIENCES**

**Winter 2021**

**Day and Time of Classes:** Monday 8:30-11:20am

**Class Location:** Online Virtual Classroom  ITB/1

**Instructor:** Diana Singh

**Office Hours:** Thursday 3:30-4:30pm

**Location:** Online Virtual Office

**Email Address:** singhd22@mcmaster.ca

**COURSE DESCRIPTION**

This course is an applied research course that involves intensive writing requirements and the use of a statistical software package to carry out secondary data analyses on publically available data. Throughout this course, students will be given an introduction to the nature of association and the logic of controlling for variables. We will begin by introducing standard analytical techniques, including a review of core descriptive and inferential statistics, bivariate and multiple regression. Students will also learn extensions of the standard multivariate regression model that reflect its flexibility, including interaction effects between variables (intersections), and logistic regression for dichotomous outcomes). All lessons will require applied components, where students will be working directly with data using a preferred a statistical software program for the social sciences.

**COURSE OBJECTIVES**

By the end of the course, you will:

* Advance your understanding of the importance of advanced statistical approaches in the social sciences.
* Be able to effectively analyze and interpret results from secondary data analysis.
* Be knowledgeable of the importance and meaning of statistical inference and comprehend the reasoning of multivariate regression analysis.
* Understand when necessary to employ analytical techniques beyond the traditional multivariate regression model
* Be able to present research results from secondary data analysis in forms similar to those of published research in the social sciences.

**LEARNING OUTCOMES**

This course addresses several University Undergraduate Degree Level Expectations (see, <http://cll.mcmaster.ca/COU/pdf/Undergraduate%20Degree%20Level%20Expectations.pdf>).

* Sociologists rely on a range of analytical tools to test hypotheses and answer research questions about the social world. Gaining knowledge of these diverse approaches will enhance students’ depth and breadth of knowledge, as well as advance their skills in conducting original research.
* Depending on the research question asked and the nature of the data analyzed, researchers must use more complex statistical tools beyond standard regression techniques. Students will learn to evaluate the appropriateness of different approaches and techniques to answering research questions, depending on the variables available.
* Students will learn how to output and present research results in a professional manner.
* This course will further develop students’ writing skills and their comprehension of published research using advanced quantitative research techniques.

**PREREQUISITE:** SOCIOL 3FF3 and enrolment in Level IV of any Honours Sociology (Specialist Option) program or permission of the department.

**ANTIREQUISITE:** SOCIOL 3H06 A/B.

**OVERVIEW**

This course is a follow-up to a first methods course that includes some introduction to descriptive and inferential statistics and the logic of hypothesis testing. We begin by going back to go forward, reviewing some material on the fundamental building blocks of statistical theory and statistical inference.

We will then advance our understanding of the nature of association and the logic of controlling for variables, and then introduce regression, correlation, and multiple regression. Multiple regression is a universal technique used in most disciplines that apply quantitative data analysis.

Near the end of the course, we will consider the extensions of this model, including interaction effects between variables (intersections), nonlinear relationships, and logistic regression for dichotomous outcomes.

**CLASS FORMAT**

Lectures will be asynchronized and all material, including PSPP labs, will be posted online for student access the morning of the scheduled class time. Tutorials will be synchronized and occur during the scheduled tutorial time. Tutorials will be led by the TA and will serve as a virtual lab for students to learn PSPP.

**STATISTICAL SOFTWARE**

Students can access the required computer software on their laptop. We will be using PSPP, a free statistical software developed by GNU Project (<https://www.gnu.org/software/pspp/get.html>). This program is equivalent to the popular statistical package IBM SPSS. Course instruction will be provided using PSPP’s syntax, which is compatible with SPSS’s syntax. Alternatively, you can use SPSS; a popular program among social a popular program among social scientists, public organizations, and private businesses. You are not required to buy this program for your personal computer; however, the bookstore has student versions available for purchase if you so desire (https://campusstore.mcmaster.ca/computers/software-licences.html). Details about how to use PSPP are provided in the course text. Myself, and the TA will also post reference resources and learning aids on Avenue to Learn for those students who prefer additional instruction of PSPP.

**REQUIRED WORK**

***Assignments***

There will be two assignments to complete in this course. The first, is a computer assignment in which you will analyze data I provide. This assignment will demonstrate your knowledge of PSPP for descriptive and inferential statistics. I (and the TA) will teach the use of PSPP and provide detailed instruction about the data you will analyze throughout the course. The assignment will be written up as short papers meant to analyze a specific research question, following the requirements of the questions in the assignment. Results from your computer analyses can be embedded into your assignment as tables and/or figures.

The second assignment is a research proposal, which will be written for access to McMaster’s Research Data Centre (RDC). You will be requesting access to the 2018 Canadian Internet Use Survey data (Statistics Canada microdata files). This assignment will require you to watch the Netflix documentary, *The Social Dilemma*, which you will critically evaluate and use to inform your research proposal (e.g. research questions, focal variables, rationale and proposed analysis). The documentary will be screened online during scheduled virtual class time on three separate occasions (TBA) for students to view. The research proposal will follow Statistics Canada’s requirements for RDC Project Proposals for data access.

***Participation***

Students will be evaluated for their participation during virtual tutorials. Tutorial time will be dedicated to learning PSPP by working through guided labs in a virtual tutorial. The TA will assist you with these lessons and evaluate you on your attendance and performance during tutorial time.

***Examinations***

There will be two online tests. Each test will include multiple choice, short answer and PSPP interpretation, but will also include conceptual questions. The final will take place during the exam period and is non-cumulative.

DUE DATES AND WEIGHTS FOR REQUIRED WORK:

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| **Assessment or Task** | **Date** | **Weights** |
| Participation | Weekly | 20% |
| Term Test | February 22 | 20% |
| Assignment 1 | March 15 | 15% |
| Assignment 2 | TBA | 15% |
| Final Exam | TBA | 30% |

TUTORIAL SCHEDULE

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| **Tutorial #** | **Date and Time** | **Location** |
| Tutorial 1 | TBA | Virtual Online |

**\**TA: TBA***

**COURSE SCHEDULE AND READINGS**

\*\*Please see the attached calendar for a tentative course schedule and readings. This schedule is subject to change. A more detailed outline of assigned readings will be provided the first week of classes.

**LATE ASSIGNMENTS & MISSED TESTS**

Late assignments will be deducted 5% per day starting immediately after the designated due date and time has passed. Students who miss a test or assignment deadline due to extremely special circumstances must contact me at least 48 hours prior by email and provide formal documentation as outlined below under Departmental/University Policies.

**AVENUE TO LEARN**

Avenue will be used in this course primarily for two purposes – to post: 1) data, assignments, PSPP/SPSS resources, and other course materials; and 2) most lecture Power Point materials, along with helpful aids related to course material.

**REQUIRED READING**

1. **Allison, Paul**. 1999. *Multiple Regression: A Primer*. Thousand Oaks: Pine Forge Press\*
2. **Haan, Michael** and **Jenny Godley**. 2017. An Introduction to Statistics for Canadian Social Scientists. 3rd edition. Oxford University Press.\*

\*Available at *McMaster University’s* *Titles Bookstore*

~*All additional readings will be available through Avenue to Learn*

**ACADEMIC DISHONESTY:**

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.

2. Improper collaboration in group work.

3. Copying or using unauthorized aids in tests and examinations.

Students will be required to submit their work electronically so that it can be checked for academic dishonesty.

**DEPARTMENTAL/UNIVERSITY POLICIES:**

**Course Modifications**

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

**Faculty of Social Sciences E-mail Communication Policy**

It is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student’s own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student’s responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.

**Religious, Indigenous and Spiritual Observances (RISO)**

The University recognizes that, on occasion, the timing of a student’s religious, Indigenous, or spiritual observances and that of their academic obligations may conflict. In such cases, the University will provide reasonable academic accommodation for students that is consistent with the Ontario Human Rights Code.

Please review the [RISO information for students in the Faculty of Social Sciences](https://socialsciences.mcmaster.ca/current-students/riso) about how to request accommodation.

**Academic Accommodation of Students with Disabilities**

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](https://sas.mcmaster.ca/) (SAS) at 905-525-9140 ext. 28652 or [sas@mcmaster.ca](mailto:sas@mcmaster.ca%20) to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [*Academic Accommodation of Students with Disabilities*](http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf)policy.

**Conduct Expectations**

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](https://secretariat.mcmaster.ca/app/uploads/Code-of-Student-Rights-and-Responsibilities.pdf) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, whether in person or online.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

**Copyright and Recording**

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

## Extreme Circumstances

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

**Grades**

Grades will be based on the McMaster University grading scale:

| **MARK** | **GRADE** |
| --- | --- |
| 90-100 | A+ |
| 85-89 | A |
| 80-84 | A- |
| 77-79 | B+ |
| 73-76 | B |
| 70-72 | B- |
| 67-69 | C+ |
| 63-66 | C |
| 60-62 | C- |
| 57-59 | D+ |
| 53-56 | D |
| 50-52 | D- |
| 0-49 | F |

[see below for calendar]

January 2021

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|  | | DESCRIPTIVE STATISTICS  REVIEW | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley Part 1* | |  | |  | |  | |  | |  | |
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|  | | INFERENTIAL STATISTICS  REVIEW | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley Part 2* | |  | |  | |  | |  | |  | |
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***\*\*\*Note, this is a tentative reading guide and schedule. A more detailed guide will be provided the first week of classes.***

February 2021

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|  | | INTRODUCTION TO PSPP/SPSS:  DESCRIPTIVE ANALYSES | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley SPSS*  *Lab Manual* | |  | |  | |  | |  | |  | |
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|  | | INTRODUCTION TO PSPP/SPSS:  INFERENTIAL  ANALYSES | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley SPSS*  *Lab Manual* | |  | |  | |  | |  | |  | |
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|  | | BIVARIATE &  MULTIVARIATE  CORRELATION/REGRESSION | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley Part 3*  *Allison (1999)* | |  | |  | |  | |  | |  | |

March 2021

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|  | | SPSS: REGRESSION | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley SPSS*  *Lab Manual* | |  | |  | |  | |  | |  | |
|  | | *Allison (1999) cont.* | |  | |  | |  | |  | |  | |
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|  | | ***Assignment 1 Due*** | |  | |  | |  | |  | |  | |
|  | | DUMMY VARIABLES | |  | |  | |  | |  | |  | |
|  | | *Allison (1999) cont.*  *Reading posted on Avenue* | |  | |  | |  | |  | |  | |
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|  | | TYPES OF  ASSOCIATIONS | |  | |  | |  | |  | |  | |
|  | | *Reading posted on Avenue* | |  | |  | |  | |  | |  | |
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|  | | LOGISTIC  REGRESSION | |  | |  | |  | |  | |  | |
|  | | *Haan & Godley Part 3*  *Allison (1999)* | |  | |  | |  | |  | |  | |
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April 2021

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|  | | ***TEST REVIEW***  *Assignment 2* | |  | |  | |  | |  | |  | |
|  | | DUE DATE TBA | |  | |  | |  | |  | |  | |
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