SOCIOLOGY 4FF3
Applications of Quantitative Methods in the Social Sciences

Winter 2020                                         Instructor: Dr. Lisa Kaida
Day and Time of Classes: Mon 8:30-11:20am   Ext.: 23601
Class Location: LRW-5012                       Office Hours: Tues 12-1pm
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Only communications from McMaster email addresses will be responded to. Please expect a reply from us within **3 business days**. Be sure to include 'Sociology4FF3' in the e-mail subject header to facilitate a timely response.)

## COURSE OVERVIEW & OBJECTIVES
### Course Overview:
This course introduces students to more advanced language and methods of quantitative analyses in the social sciences, including an introduction to a statistical software program.

### Course objectives:
By the end of this course, you will be able to:
1) Conduct univariate, bivariate, and introductory multivariate analyses and to choose an appropriate analytical technique depending on the levels of measurement of variables of your interest.
2) Design a quantitative research project and to write a research paper that can be presented in an academic sociology conference (e.g. Canadian Sociological Association annual meetings).
3) Operationalize concepts and social phenomena of your interest and to derive hypotheses that can be tested using survey data.
4) Write syntax for managing data and conducting analysis using statistical software (SPSS or PSPP).
5) Analyze public use microdata (e.g. GSS) using relevant documents (e.g. codebooks, data dictionaries, questionnaires).
6) Read and critique academic sociology journal articles that are using basic social statistics.

## COURSE TEXTBOOKS AND STATISTICAL SOFTWARE
### Textbooks
*Required*
Haan, Michael and Jenny Godley. 2017. *An Introduction to Statistics for Canadian Social Scientists*. 3rd edition. Oxford University Press.

*Optional*
Grotenhuis, Manfred te and Chris Visscher. 2014. *How to Use SPSS Syntax: An Overview of Common Commands*. Sage.

**Statistical Software:**
You will use PSPP, a free statistical software developed by GNU Project (https://www.gnu.org/software/pspp/get.html). You are recommended to install this software to your laptop. Course instruction will be provided using PSPP's syntax, which is compatible with SPSS's syntax.

Alternatively, you can use IBM SPSS Statistics (SPSS). A student license can be purchased at McMaster Campus Store (https://campusstore.mcmaster.ca/computers/software-licences.html). SPSS may be available in some of the computers in student computer labs on campus.

**Topics and Schedules**

|  |  | Week | Topic |
|---|---|---|---|
| January | 6 | 1 | Introduction (the research process, levels of measurement, downloading PSPP |
|  | 13 | 2 | Univariate analysis; graphical presentation of data; introduction to PSPP |
|  | 20 | 3 | Measures of Central Tendency & Dispersion |
|  | 27 | 4 | The normal curve, sampling distributions, confidence intervals |
| February | 3 | 5 | Hypothesis testing for one and two samples, Type I and II error |
|  | 10 | 6 | One-way ANOVA |
|  | 17 | 7 | No class |
|  | 24 | 8 | Crosstabulation and Chi Square test |
| March | 2 | 9 | Correlation |
|  | 9 | 10 | Linear & multiple regression & diagnostics 1 |
|  | 16 | 11 | Linear & multiple regression & diagnostics 2 |
|  | 23 | 12 | Dummy variables, interaction effects |
|  | 30 | 13 | Conclusion |

**Other important dates, Winter 2020**
January 14 (Tues): Last day for enrollment (registration) and changes
March 13 (Fri): Last day for cancelling courses without failure by default
Note: This is not the complete list – for other important dates, please go to:
https://academiccalendars.romcmaster.ca/content.php?catoid=38&navoid=8059

**METHOD OF EVALUATION**
**Grade Breakdown:**

|  | % |
|---|---|
| Take-home exercises | 10*3=30 |
| Research paper proposal | 10 |
| 1st draft of research paper | 25 |
| Final draft of research paper | 35 |
| Total | 100% |
|  |  |
|  |  |

**Take-home exercises (10% * 3 exercises=30%)**
**Quantitative Exercise #1 (10%): DUE February 3**
- Take home assignment will be handed out to you on January 27. This work must

be completed individually.

**Quantitative Exercise #2 (10%): DUE February 24**
- Take home assignment will be handed out to you on February 10. This work must be completed individually.

**Quantitative Exercise #3 (10%): DUE March 23**
- Take home assignment will be handed out to you on March 16. This work must be completed individually.

**Research Paper Assignments:** This is the main requirement of this course. The goal is to write a quantitative sociological research paper that uses univariate, bivariate, and multivariate analyses. Your research paper must be of quality (theoretically and methodologically) that can be accepted to and presented in an academic sociology conference (e.g. Canadian Sociological Association annual meetings).

You will complete the paper in three stages throughout the course:
**1) Research paper proposal (10%): DUE January 27**
- Prepare a 2-page (single-spaced) overview of your proposed research paper project. Your proposal should outline the research questions, hypotheses, context, and rationale for the research, as well as the data, sample, and independent (2) and dependent (1) variables of your interest. Detailed instructions will be provided later.

**2) First Draft of Research Paper (25%): DUE March 2**
- This 15-page (double-spaced) paper will use quantitative methods to examine the sociological research questions and hypotheses you have identified in the research proposal. Building on your research proposal, you must identify your own research questions/hypotheses, conduct a brief literature review, and analyze the data of your choice using appropriate univariate and bivariate analyses (to answer your questions). The paper should resemble a basic quantitative journal article with the following main headings: Introduction; Background/Literature Review; Data & Methods; Results; Conclusion/Discussion. Detailed instructions will be provided later.

**3) Final Research Paper (35%): DUE March April 6**
- This will be the final version of the research paper outlined above. In addition to what you have done in the first draft, you must conduct a multivariate analysis (e.g. OLS regression) to answer your research questions. The paper should be no less than 20 pages (double-spaced). Detailed instructions will be provided later.

**OTHER COURSE-RELATED ITEMS:**
**Class format:**
The course consists of a mix of my lectures and lab sessions. In each week, the first part of class will be dedicated to a lecture where I mainly explain the statistical methods covered in the course textbook. I expect you to come to every class having completed all the assigned readings. In the second part of class, you will apply what you have

learned in my lecture to a data analysis using PSPP. Please note that you must conduct the analysis using syntax, not the PSPP menus and graphic user interface, for this course. This is because the ability to write syntax (coding) is crucial for conducting intermediate and advanced quantitative analysis using various statistical packages, other than PSPP (e.g. SAS, STATA). Learning one type of syntax rules (i.e. PSPP/SPSS) will help you easily switch to other major statistical packages.

**Office Hours and Appointments:** I encourage you to visit my office to discuss matters of concern. If you cannot make it during the regular office hours (Tues, 12-1pm), please let me know so we can arrange an appointment.

**Late Policy:**
Assignments are due when specified on the course outline above. No extensions will be granted except in the case of a documented medical issue or emergency. If an assignment is submitted late, 5% for each 24 hour period following the deadline with be deducted, with no prorating over the 24 hour period. For example, if you receive 65% on the final research paper, but turn in the paper in 6 hours late, you will lose 5%, or receive a grade of 60. Weekends count as days late.

**Grade Appeals:**
- Every effort will be made to provide you with a grade that honestly reflects the quality of your work. Read carefully the comments provided on the returned assignment.
- If, after having read the comments, listened to the review and reread your work, you believe the grade does not adequately reflect the quality of your work, return the assignment to me with short, specific, written comments arguing for the quality of your work. You must use the designated form, which is available upon request. The request form must be submitted to me in person within **1 week** of the assignment being returned to the class. Re-marked assignment can be graded up or down.

**Inclusion and Equity:** This course brings together students from a variety of academic disciplines, as well as ethnic and cultural backgrounds. Learning from our diversity of experience, values and world views is a strength of the university experience. In order for all students to get the most from this course, dialogue should be respectful across disciplinary, cultural and personal differences.

**Students with Disabilities:** Students with diverse learning styles and needs are welcome in this course. If you have a disability or health consideration that may require accommodations, please approach me as soon as possible. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.
**Classroom Policies:**
- I will not tolerate discourtesy or disruptions of any kind during lectures.
- Late arrivals and early departures are disruptive and are thus not acceptable.
- In consideration of your colleagues, please turn off cell/smart phones during class time.

**Campus Support**
- Student Academic Success Centre, writing support services
  https://studentsuccess.mcmaster.ca/academic-support/academicsupport/#academicWriting
- Student Wellness Centre, counselling services
  http://wellness.mcmaster.ca/counselling.html
- Mac Library http://library.mcmaster.ca

**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 (Not giving proper credit to your sources).
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

**Turnitin.com**
In this course, we will be using a web-based service (Turnitin.com) to reveal plagiarism. You will be required to submit your work electronically (Assignment within Avenue) so that it can be checked for academic dishonesty. To see the Turnitin.com Policy, please go to http://www.mcmaster.ca/academicintegrity/turnitin/students/index.html.

**DEPARTMENTAL/UNIVERSITY POLICIES:**
Do NOT fax assignments.  Please see your instructor for the most appropriate way to submit assignments.

The Sociology staff do NOT date-stamp assignments, nor do they monitor the submission or return of papers.

The McMaster Student Absence Form (http://www.mcmaster.ca/msaf/) is a self reporting tool for Undergraduate Students to report absences that last up to 3 days and provides the ability to request accommodation for any missed academic work.  Please note, this tool cannot be used during any final examination period.
You may submit a maximum of 1 Academic Work Missed request per term.  It is YOUR responsibility to follow up with your instructor immediately regarding the nature of the accommodation.

Please note that the MSAF can be used for "missed academic work worth **less than 25%** of the final grade resulting from medical or personal situations lasting up to three

calendar days" (https://www.mcmaster.ca/msaf/). Therefore, you cannot submit the MSAF for the first draft of research paper and the final paper (worth 25% and 35% of the final grade, respectively).

If you are absent more than 3 days, exceed 1 request per term, or are absent for a reason other than medical, you MUST visit your Associate Dean's Office (Faculty Office).  You may be required to provide supporting documentation.

This form should be filled out when you are about to return to class after your absence.

Students should check the web, the white board and the Undergraduate Bulletin board outside the Sociology office (KTH-627) for notices pertaining to Sociology classes or departmental business (e.g. class scheduling information, location of mailboxes and offices, tutorial information, class cancellations, TA job postings, etc.).

Computer use in the classroom is intended to facilitate learning in that particular lecture or tutorial.  At the discretion of the instructor, students using a computer for any other purpose may be required to turn the computer off for the remainder of the lecture or tutorial.

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.

### *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 Policy for further details; apply via  the School of Graduate Studies (GH-212*).*

### *Academic Accommodation Of Students With Disabilities*
Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca. For further information, consult McMaster University's *Academic Accommodation of Students with Disabilities* policy.

### *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.

**COURSE READINGS:**
**H&G = Haan and Godley textbook**
**SPSS = *How to Use SPSS Syntax***

**Part 1: Univariate analysis**
**January 6 (Week 1) Introduction**
H&G Chaps.1-2

**January 13 (Week 2) Univariate analysis, Graphical Representation of Data, Introduction to PSPP**
H&G Chap.3
SPSS pp. 9-38, 44-45, 49-50, 73-78, 121-123

**January 20 (Week 3) Measures of Central Tendency & Dispersion**
H&G Chaps. 4-7
SPSS pp.86-89

**January 27 (Week 4) The normal curve, sampling distributions, confidence intervals**
H&G Chaps. 8-9

**Part 2: Bivariate analysis**
**February 3 (Week 5) Hypothesis testing for one and two samples, Type I and II error**
H&G Chaps. 10-11
SPSS pp.90-92

**February 10 (Week 6) One-way ANOVA**
H&G Chap. 15
SPSS pp.86-89

**February 17 (Week 7) No class**

**February 24 (Week 8) Crosstabulation and Chi Square test**
H&G Chaps. 12-13
SPSS pp.79-82

**March 2 (Week 9) Correlation**
H&G Chap. 14
SPSS pp.93-94

**Part 3: Multivariate analysis**
**March 9 (Week 10) Linear & multiple regression & diagnostics 1**
H&G Chap. 16
SPSS pp.95-101

**March 16 (Week 11) Linear & multiple regression & diagnostics 2**
H&G Chap. 16
SPSS pp.95-101

**March 23 (Week 12) Dummy variables, interaction effects**
H&G Chaps. 16, 18
SPSS pp.95-101

**March 30 (Week 13) Conclusion**
No reading.