Political Science 3NN3
Statistical Analysis of Primary Data
Winter 2021

Instructor: Dr. Todd Alway
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Lectures: Available on Avenue

Office Hours: On Zoom: Wednesdays 11:30 a.m.-1:30 p.m. Or by appointment

Contents

Course Description

In your previous research methods course (Political Science 2NN3), you explored many of the techniques that you can use to gather primary data. In fact, social scientific research often produces enormous quantities of primary data – on voters, on states, on beliefs, and on actions. The question is, what do we do with the data once we have it? This course will explore some of the statistical techniques that you can use to analyze data. Statistics can simplify our analysis of the political world – helping us find patterns and identify relationships between variables.

Course Objectives

By the end of the course students should be able to:

- Calculate basic Descriptive statistics, Inferential statistics, and Measures of Association by hand.
- Analyze data using computer software (SPSS (or PSPP))
- Answer political questions using quantitative output

Required Materials and Texts

Noack, Andrea M., *Social Statistics in Action: A Canadian Introduction*, Don Mills: Oxford University Press, 2018.

This book is available at the McMaster University Campus Store. You can rent an electronic version of the textbook (at a much lower price) through Oxford's digital textbook platform. You also have access to a textbook companion website that contains flashcards, sample quizzes, SPSS videos, and other useful material.

Class Format

This course will run on an online platform (Avenue to Learn). All course lectures will be available for viewing on Avenue. Students will also attend live tutorials. Tutorials (which will be held on Zoom) focus on using SPSS. A detailed week-by-week overview of the tutorials is contained in the Course Guide posted on Avenue.

The material in this course is cumulative in nature. The key to doing well is keeping up with the assigned work – including the lectures, the readings, and the SPSS exercises.

Course Evaluation – Overview

1. Test I - 15%: Thursday, February 11, 2021, 5:00p.m. – 7:00p.m.
2. Test II - 15%: Monday, March 15, 2021, 5:00p.m. – 7:00p.m.
3. Final Exam - 20%: Available on Avenue during the official examination period.
4. Tutorial Assignments: 50% total. Assignments I and II are worth 10% each. Assignments III and IV are worth 15% each. Each assignment is due within 72hrs of your scheduled tutorial date/time.

Course Evaluation – Details

Test I – 15%, Thursday, February 11, 5:00p.m. – 7:00p.m.

Test I will be available in Avenue on Thursday, February 11, from 5:00p.m. – 7:00p.m. You can start the test at any time during this two-hour window. However, your test must be completed by 7:00p.m. The first test will focus on univariate descriptive statistics. Students will be expected to demonstrate an understanding of statistical concepts, the ability to calculate and interpret statistics, and skill in interpreting SPSS output. The test will be multiple choice and short answer in nature.

Test II – 15%, Monday, March 15, 5:00p.m. – 7:00p.m.

Test II will be available in Avenue on Monday, March 15, from 5:00p.m. – 7:00p.m. You can start the test at any time during this two-hour window. However, your test must be completed by 7:00p.m. The second test will focus on inferential statistics. Students will be expected to demonstrate an understanding of statistical concepts, the ability to calculate and interpret statistics, and skill in interpreting SPSS output. The test will be multiple choice and short answer in nature.

Final Exam – 20%, to be scheduled during the official examination period

The final exam will be held during the official examination period (as scheduled by the Registrar). Since this is an exam, MSAFs will not apply. The exam will be cumulative, with a particular focus on Measures of Association. Students will be expected to demonstrate an understanding of statistical concepts, the ability to calculate and interpret statistics, and skill in interpreting SPSS output. The test will be multiple choice and short answer in nature.

Tutorial Assignments – 50% total. Assignments I and II are worth 10% each. Assignments III and IV are worth 15% each. Each assignment is due within 72hrs of the relevant tutorial date/time

This course has 7 tutorials. Tutorials meet in real time (on Zoom) and focus on using SPSS to answer Political Science research questions. During your scheduled tutorial, a Teaching Assistant will demonstrate how to use and interpret SPSS for a given statistical technique/research scenario. Linked to 4 of the 7 tutorials is a short Assignment. Your task is to **independently** complete those assignments. Assignment answers (**in your own words**) should be uploaded to the appropriate Assignment drop box within 72 hours of **your** scheduled tutorial date/time. Answers should be uploaded as a Word document or pdf and should include the SPSS (or PSPP) output.

Note I: Because this course is taking place in an online environment you will need to use a Virtual Desktop to access SPSS. Alternatively, you can download PSPP (a freeware version of SPSS) and complete the exercises on that platform (although this will require navigating software that is slightly different than SPSS). Further guidance on accessing a Virtual Desktop or installing PSPP can be found in the Course Guide and on Avenue.

Note II: Please complete a first draft of your tutorial assignment **prior** to the relevant tutorial. Doing so will allow you to raise any conceptual and/or technical questions during the tutorial itself – and thereby allow you to submit your assignment on time.

Weekly Course Schedule and Required Readings

Topic 1 (January 11, 2021)

Introduction to quantitative analysis: Using statistics to illuminate the political world

Readings:
Noack, Chapter 1, pp1-24 Appendix A pp482-488

Descriptive Statistics:

Topic 2 (January 18, 2021)

I - Basic descriptive statistics and Frequency Distributions

Readings:
Noack, Chapter 2, pp25-66

Topic 3 (January 25, 2021)

II- Measures of central tendency

Readings:
Noack, Chapters 3 and 4, pp67-128 (we will revisit these Chapters in our next two Modules as well)

Topic 4 (February 1, 2021)

III - Measures of dispersion

Readings:
Noack, Chapters 3 and 4, pp67-128

Topic 5 (February 8, 2021)

IV - Probability, the normal curve, and Z scores

Readings:
Noack, Chapter 4, pp105-128

Reading week: No Class (February 15-19, 2021)

Inferential Statistics:

Topic 6 (February 22, 2021)

I - Sampling, Sampling Distributions, and Confidence Intervals

Readings:
Noack, Chapters 5 and 6, pp129-194

Topic 7 (March 1, 2021)

II – Testing for Statistical Significance: T-Tests

Readings:
Noack, Chapter 7, pp157-194

Topic 8 (March 8, 2021)

III - Chi squared

Readings:
Noack, Chapter 9, pp278-287, 297-299

Measures of Association:

Topic 9 (March 15, 2021)

I - Measures of Association for Categorical Data: Lambda, Phi, and Cramer's V

Readings:
Noack, Chapter 9, pp261-269, 278-292

Topic 10 (March 22, 2021)

II - Measures of Association for Ordinal Data: Gamma

Readings:
Noack, Chapter 9, pp270-278

Topic 11 (March 29, 2021)

III - Measures of Association for Ratio-level Data: Pearson's Correlation Coefficient

Readings:
Noack, Chapter 10, pp307-347

Topic 12 (April 5, 2021)

IV - Linear Regression

Readings:
Noack, Chapter 11, pp349-396

April 12

There is no new content this week. However, I am available in my Zoom office on Monday, Tuesday and Wednesday from 11:30am-1:30pm to answer any questions relating to the upcoming final exam.

Course Policies

Submission of Assignments and tests

This course will use tests and assignments to assess your comprehension of the course material. All tests and assignments should be answered individually and in your own words. Do not simply "cut and paste" material out of the lectures, lecture summaries, course readings, or other sources: Doing so does not demonstrate **your** understanding of the course content.

Course assignments should be submitted to the appropriate Assignments drop box in Avenue by the designated due date. Written assignments should be submitted as a Word document or pdf.

If, for any reason, you cannot access the Assignments drop box before the assignment due date, please email the assignment to your TA in the specified time frame.

Late Assignments

Late assignments may be subject to a one letter grade per day deduction. For example, an A- assignment received one day late may be reduced to a B+. Late assignments will not be accepted once graded assignments have been returned to the class.

Absences, Missed Work, Illness

The expectation for this course is that all components will be completed.

All requests for extensions (excluding SAS requests) should be submitted through the MSAF process.

In the event of an approved absence for an Assignment, the Assignment will be due **three days** from the original due date (inclusive of weekends).

In the event of an approved absence from a test, the make-up test dates (held on Avenue) are as follows:

- Test I: Monday, February 22, 5:00p.m. – 7:00p.m.

- Test II: Friday, March 19, 5:00p.m. – 7:00p.m.

Course Software and Technology

This course incorporates and utilizes several technological platforms:

Avenue to Learn

In this course we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

Zoom

In order to fully participate in live tutorials, students require access to Zoom. Students should register for a free account (and download the relevant software) through McMaster's zoom website. All tutorial participants must access Zoom through their McMaster Zoom account - even if they have previously created a non-McMaster-specific Zoom account.

SPSS and PSPP

In actual research situations that involve quantitative analysis, you will most likely be using computer software. In this course, we will be using SPSS and/or PSPP. SPSS is an easy to use (and popular) software package. The course textbook (and the Tutorials) offer guidance on how to use SPSS. Since we are not physically on campus for this course, we will not be able to use the University's physical computer labs. However, you can virtually access the University's subscription to SPSS from your own computer by following one of three methods.

If technology limitations make it difficult to access the University's virtual desktop environment, you can use PSPP as a free alternative to SPSS. PSPP looks (and functions) in a way that is similar to SPSS, although there are occasional differences that might require "clicking" a different button or "checking" a different box depending on the statistical operation that you wish to perform. You can download a copy of PSPP (for Windows (install the file PSPP_2020-09-05_daily_64bits)) or for Mac. The Mac installation process is slightly more complex than is the case for Windows. Further guidance on installing the software can be found on Avenue.

Turnitin.com

In this course we will be using a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. Students will be expected to submit their work electronically via Avenue to Learn (A2L) plagiarism detection (a service supported

by Turnitin.com) so it can be checked for academic dishonesty. Students who do not wish to submit their work through A2L and/or Turnitin.com must still submit an electronic copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com or A2L. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more information please refer to the Turnitin.com Policy.

Grades

Grades will be based on the McMaster University grading scale:

MARK	GRADE
90-100	A+
85-90	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

University Policies

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 (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

Academic Integrity Statement

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour 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 types of academic dishonesty please refer to the Academic Integrity Policy**.**

The following illustrates only three forms of academic dishonesty

- Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- Improper collaboration in group work.
- Copying or using unauthorized aids in tests and examinations.

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.

Academic Accommodation for Religious, Indigenous or Spiritual Observances (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office ***normally within 10 working days*** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

Academic Accommodation of Students with Disabilities

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

Faculty of Social Sciences E-mail Communication Policy

Effective September 1, 2010, 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 Modification

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.

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.