Carleton University
Summer 2021
Department of Political Science
https://carleton.ca/polisci/

PSCI 2702A

Quantitative Research Methods in Political Science

Instructor: Noah S. Schwartz

Online Office Hours: Thursdays, 13:00-14:00 or by appointment.

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Tutorial Groups:

Group A – Last names A-M

Tuesday – 14:35-15:25
Thursday – 14:35-15:25

Group B – Last names N-Z

Tuesday – 15:35-16:25
Thursday – 15:35-16:25

Course Description

Quantitative research methods – it sounds scary! But it does not have to be. Statistical literacy is an important skill to develop, regardless of whether you go into politics, government, business, or you are just a sports fan. Statistics help us describe and understand the world around us. They can be powerful tools for advancing social justice, designing policies, and explaining political behaviour.

Statistics help us tell important stories about what is going on in the world. But learning statistics is like learning a new language. It takes time, patience, and dedication. This course will focus on introducing you to the language of statistics. This will include learning important statistical concepts, interpreting relationships between different variables, and developing the ability to critically analyze quantitative research.

I understand that for most of you, this course is your first step into the world of statistics. I do not expect you to become statisticians after completing this course. You should, however, be able to explain to me the basic tools in the toolbelt of quantitative researchers (i.e. measures of association and linear regression), how they work, when to use them, and how to interpret their results.

This course is a mix of asynchronous and synchronous learning. Lectures are pre-recorded, and students are responsible for completing **two (2)** modules per-week. You will also spend **two (2)** hours per week in tutorial groups, discussing the concepts with your teaching assistant.

Learning Outcomes

By the end of this course, you will be able to:

1) Understand and apply the basic tools of quantitative analysis.
2) Interpret the results of statistical analyses.
3) Critically analyze and evaluate statistics presented in the media as well as in scholarly research.
4) Attend a political science conference and be able to understand what the presenters are talking about.

Course Structure

The course is divided into twelve modules. Given that this is a summer course, students are expected to complete **two (2)** modules per-week. The modules will be posted to the Brightspace page.

In addition to completing the readings and watching the modules, students will participate in **two (2)** online Zoom tutorial every week. The first tutorial will focus on discussing important concepts for the course, while the second section will focus on application (i.e. mathematical calculations). Tutorials are ***mandatory*** and attendance will be taken. If you have a legitimate scheduling issue, please contact the professor ***as soon as possible*** to arrange an alternate option.

Materials

Michael Haan & Jenny Godley. *An Introduction to Statistics for Canadian Social Scientists*. Third Edition. Oxford University Press.

Available at the university bookstore.

Assessments

Participation (20%) –

Your participation grade is based on your attendance and active contributions in the **ten (10)** online discussion groups. If you are unable to attend a discussion group for legitimate reasons, please let your TA know before the beginning of class.

Bi-Weekly Quizzes (15% x 3 = 45%) – July 9, 2 & August 6.

Quizzes will be completed online using Brightspace. Students have 30-minutes to complete each quiz. Quizzes will be multiple choice and will focus on assessing your understanding of key terms, as well as your ability to calculate and interpret statistical outputs. This likely sounds terrifying to you right now, but do not worry, by the time the quizzes come around you will know what to do.

Assignments (10% x 2 = 20%) – July 16 & 30.

Students will complete two short assignments. These assignments will test your knowledge of one of the main topics for the course. Assignment instructions can be found on the course Brightspace page.

Final Interview (15%) – Week of August 9-13

Students will complete a 15-minute final interview with the professor or TA in the last week of the course. This interview will take place over Zoom. Students will be examined based on their knowledge of the key concepts in the course.

Incentive Program (5% bonus) – Due August 16

This course has been registered in the Incentive Program offered through the Centre for Student Academic Support (CSAS). CSAS Learning and Writing Support Workshops are designed to help you cultivate and refine their academic skills for a university environment. To earn 5% bonus marks towards attendance/participation, you are expected to complete five (5) workshops throughout the term. The workshops must be completed by August 16 to receive credit for the Incentive.

For your attendance to be captured, they must complete all workshop components and achieve 100% on the final assessment. Once students achieve 100% on the final assessment, they will receive a Record of Completion award from Brightspace. Students will need to download the Record of Completion PDF for each applicable workshop and submit them to the assignment submission box within their instructor's course. For more information about workshop attendance and submitting the Records of Completion, please visit the Incentive Program Policies on our website.

To view the complete list of the workshops and their descriptions, please visit the Learning and Writing Support Workshops page on the CSAS website. Please note that CSAS webinars and in-person workshops are not eligible for the Incentive Program.

To access the online workshops, please self-enrol on the CSAS Online Resources page.

For further information on the Incentive Program, please visit the Incentive Program FAQs page. For additional questions, please contact the Centre for Student Academic Support at csas@carleton.ca

Teaching Approach

The focus of this course is on ***active learning***. As a result, you are expected to take ***responsibility*** for your learning. Keeping up with weekly readings will be important, as not all

course content will be directly delivered during the modules. You are expected to come to the discussion groups prepared to discuss the key concepts from the readings.

Brightspace Disclaimer

It is important to note that students should not have the expectation of privacy when using Brightspace. Students should be aware that ***any*** activity that they engage in on Brightspace is visible to the course instructor. That means that the instructor for any course (not just this one) can track: how often each student signs in to Brightspace, which documents they open, how long they spend on a given page or activity, etc.

Module Schedule/Readings

Given that this is a condensed summer course, students are expected to complete **two (2)** modules per-week.

<u>Week 1 – July 5-9</u>

M1 – Introduction

Summary: I understand that for most of you taking a course in quantitative methods is not the way you imagined spending your summer. In this class, I will make the case for why statistics are important, and how this class will help you in your future life and career, whether or political science is your chosen vocation.

By the end of this module, students should understand the importance of statistics, and how this class can help them achieve their career goals.

Readings: Charles Wheelan. *Naked Statistics*. Chapter 1 "What's the Point". Available through Ares on Brightspace.

M2 – Variables & Measurement

Summary: Variables are characteristics, factors, or conditions that describe certain parts of a population. In this module, we will explore the unit of analysis and levels of measurement. We will also discuss how to break down and understand large sets of numbers using frequencies, ratios, rates, and percentages.

Key Terms: By the end of this module, students should be able to define, explain and provide an example of the following terms – concept, variable, unit of analysis, levels of measurement (nominal, ordinal, interval & ratio), univariate, rate, ratio, frequency & percentage.

Readings: Textbook Chapter 2 & 3.

Week 2 – July 12-16

M3 – Descriptive Statistics

Summary: Descriptive statistics help us to describe things. Shocking, I know. Descriptive statistics are the basic building blocks of statistical analysis. They tell us things about our sample (the group of people or things that we are studying). They let us generalize and compare our sample to others. For example, using descriptive statistics we can answer important questions like: what is the average (mean) height of a Carleton Basketball player? Are Carleton players taller than uOttawa players?

Key Terms: By the end of this module, students should be able to define, explain and provide an example of the following terms – normal distribution/bell curve, central limit theorem, symmetrical, skewness, kurtosis, measures of central tendency (mean, median, mode), measures of dispersion (standard deviation), standard score, and one-tailed & two-tailed assessments.

Readings: Textbook Chapter 5, 6, & 7.

M4 – Statistical Inference

Summary: Polling – it is a billion-dollar industry, the news channels love it, and it can have a profound influence on everything from elections to support for policies. But how do polls work? How can a sample of 1,000 Canadians represent the whole country?

Key Terms: By the end of this module, students should be able to define, explain and provide an example of the following terms – sample vs. population, random sample, convenience sample, sampling error, sample distribution of means, central limit theorem, confidence intervals and t-distribution, degrees of freedom, and sample distribution of proportions.

Readings: Textbook Chapter 8 & 9.

Week 3 – July 19-23

M5 – Hypothesis Testing

Summary: A hypothesis is an educated guess; an attempt to state a theoretical relationship between two variables that can be empirically validated or rejected. One way of testing our hypothesis is to compare our sample to a larger known sample. In this module, we will delve deeper into the art of statistical inference. This will allow us to answer important questions like: how do Carleton students' grades compare to the national average? Are people in Quebec less likely to vote Conservative than other provinces? If a woodchuck could chuck wood, would they chuck more, or less wood than a different species of chuck?

Key Terms: By the end of this module, students should be able to define, explain and provide an example of the following terms – hypothesis (I already gave you the answer on that one), null hypothesis,Type I and Type II errors, and one-tailed vs. two-tailed tests.

Readings: Textbook Chapter 10 (stop after page 102) & 11.

M6 – Comparing two variables (Bivariate Analysis) using Nominal Variables

Summary: We talk a lot about intersectionality in the social sciences. But to study intersectionality using statistics, we need to be able to talk about more than one axes of oppression (or variable) at a time. This week we will focus on uncovering associations and relationships using nominal variables.

Key Terms: Nominal variable, associations, relationships, independent/dependent variable, chi-square test, and measures of association (phi, Cramer's V, Lamda).

Readings: Textbook Chapter 12.

<u>Week 4 – July 26-30</u>

M7 – Bivariate Analysis Using Ordinal Variables

Summary: As you now know, nominal variables like religion, gender, or favorite soft drink cannot be ordered. I mean, I prefer Pepsi to Coke, but that is just personal. Therefore, the relationships between nominal variables cannot have a direction. In this module, we will focus on exploring the relationship between ordinal variables (i.e. level of education), which can be ranked.

Key Terms: ordinal variables, direction (of a relationship), cross-tabulation, predicted reduction of error, Kruskal's Gamma, Somer's d, Kendall's Tau-b and Tau-c (including concordant pairs, disconcordant pairs, and tied pairs), Spearman's rho, and statistical significance.

Readings: Textbook Chapter 13

M8 – Bivariate Analysis using Interval Variables

Summary: Ordinal variables are fun, but they do have their limitations. After all, we do not know the space between the variables. For example, what is the space between high school education and university education? Interval variables on the other hand have an inherent order and equal distances between values. For example, how many years have you been enrolled in an education program? In this module we will learn how to uncover relationships between interval variables.

Key Terms: Pearson's r and the Correlation Matrix.

Readings: Textbook Chapter 14 (**CONTENT WARNING**: the section on the Correlation Matrix in the textbook, pgs. 167-168, mentions sexual violence. If this topic is triggering for you, please consider skipping this section, as the important information will be presented in the module using a different example).

Week 5 – August 2-6

M9 – Comparing Multiple Variables (Multivariate Analysis) and Regression

Summary: As we all know, the world is complicated. Sometimes we want to explore relationships between more than two variables. More importantly, we want to control for certain important variables to make sure that our bivariate relationship is not being influenced by a third factor. Regression is the most important and useful tool in the quantitative researchers toolbelt. In this module, we will begin our exploration of regression.

Key Terms: ordinary least-square regression, multivariate analysis, Beta Weights, the Multiple Correlation Coefficient, Dummy Variables.

Readings: Chapter 16.

M10 – More Regression!

Summary: In our first module on regression, we looked at Ordinary Least Squares (OLS) regression. In this module, we will look at what happens when regression goes wrong. We will also briefly discuss alternative types of regression.

Key Terms: Outliers, homoscedasticity & heteroscedasticity, and collinearity & multicollinearity.

Readings: Chapter 18.

Week 6 – August 9-13

M11 – Finishing up the Course.

Summary: You are now a master of quantitative methods – or at least advanced beginners. In this module we will tie the course together, and practice evaluating quantitative models in academic journals.

Readings: There are no readings this week. Students should focus on revising for their final interview.

M12 – Final Interview
Students will be asked to sign up for a time slot for a Zoom Interview.

Course Policies

Accommodations during COVID

Due to COVID, instructors will not request or require a doctor's note when students seek accommodation for missed term work or exams due to illness. Instead, students will be asked to complete the self-declaration form available here: https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf

Illness

We are living amid an unprecedented public health crisis. Now, more than ever, it is important to take care of our physical and mental health. **Please contact me as soon as possible** if you are suffering a ***physical*** or ***mental*** health-related problem and require accommodations.

Please follow all public health guidelines. These can be found at:

1. The City of Ottawa: https://www.ottawapublichealth.ca/en/index.aspx
2. Government of Ontario: https://covid-19.ontario.ca/
3. Government of Canada: https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19.html

Late Papers

All assignments should be submitted through Brightspace. All assignments are due, at the latest, by 10:00 pm on the assigned due date. There will be a **5% per day** late penalty on all assignments unless you have contacted me in advance with a legitimate reason for being late.

Extensions will be handled on a case by case basis. Please email me ***at least 24hrs before the due date of the assignment*** if you wish to request an extension. Legitimate excuses for extensions include, but are not limited to illness, mental health issues, documented learning disability, death/illness of a family member/friend, providing support for a sick friend/family member/roommate, etc. Barring exceptional circumstances, late assignments will not be accepted more than **three (3) days** after the original deadline.

Appealing a Grade

Students who wish to appeal a grade must fill out the Grade Appeal Form on Brightspace and submit it to their TA.

Course Conduct

There is an expectation that everyone in this course will be committed to the pursuit of scholarly exploration, knowledge acquisition, and intellectual freedom. When contentious

issues are being discussed, it is expected that everyone will comport themselves in a spirit of mutual respect and exchange. Rudeness, disruption, harassment, and threats will ***not*** be tolerated.

Carleton E-mail Accounts

All email communication to students will be ***via official Carleton university e-mail accounts and/or Brightspace***. As an important course and University information is distributed this way, it is the student's responsibility to monitor their Carleton and Brightspace accounts

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: **carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf**

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: **carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf**

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. **carleton.ca/pmc**

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: **carleton.ca/sexual-violence-support**

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. **https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf**

For more information on academic accommodation, please contact the departmental administrator or visit: **students.carleton.ca/course-outline**

Plagiarism

The University Senate defines plagiarism as "presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own." This can include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;
- handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs.

Plagiarism is a serious offence which cannot be resolved directly with the course's instructor. The Associate Deans of the Faculty conduct a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They may include a mark of zero for the plagiarized work or a final grade of "F" for the course.

Student or professor materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Submission and Return of Term Work

Papers must be submitted directly to the instructor according to the instructions in the course outline and will not be date-stamped in the departmental office. Late assignments may be submitted to the drop box in the corridor outside B640 Loeb. Assignments will be retrieved every business day at **4 p.m.**, stamped with that day's date, and then distributed to the instructor. For essays not returned in class please attach a **stamped, self-addressed envelope** if you wish to have your assignment returned by mail. Final exams are intended solely for the purpose of evaluation and will not be returned.

Grading

Standing in a course is determined by the course instructor, subject to the approval of the faculty Dean. Final standing in courses will be shown by alphabetical grades. The system of grades used, with corresponding grade points is:

Percentage	Letter grade	12-point scale	Percentage	Letter grade	12-point scale
90-100	A+	12	67-69	C+	6
85-89	A	11	63-66	C	5
80-84	A-	10	60-62	C-	4
77-79	B+	9	57-59	D+	3
73-76	B	8	53-56	D	2
70-72	B-	7	50-52	D-	1

Approval of final grades

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by an instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Carleton Political Science Society

"The Carleton Political Science Society (CPSS) has made its mission to provide a social environment for politically inclined students and faculty. By hosting social events, including Model Parliament, debates, professional development sessions and more, CPSS aims to involve all political science students at Carleton University. Our mandate is to arrange social and academic activities in order to instill a sense of belonging within the Department and the larger University community. Members can benefit through our networking opportunities, academic engagement initiatives and numerous events which aim to complement both academic and

social life at Carleton University. To find out more, visit us on Facebook https://www.facebook.com/CarletonPoliticalScienceSociety/ and our website https://carletonpss.com/, or stop by our office in Loeb D688!"

Official Course Outline

The course outline posted to the Political Science website is the official course outline.