University of Toronto

Department of Political Science

Summer 2020

POL222H1 F

INTRODUCTION TO QUANTITATIVE REASONING I

Summer 2020 Online Course

Brief Syllabus

What this course is all about:

This course introduces students to the underlying ideas and methods of political science and how the scientific method allows scholars to answer questions about politics and power. We will cover principles of research design, and introduce the concepts underpinning statistical inference, with the goal of enabling students to read statistical research. The course emphasizes being able to understand the kinds of descriptive and inferential statistics presented in many professional and policymaking jobs, that help practitioners make better decisions and efficiently communicate their findings. No mathematical background beyond elementary-school arithmetic and familiarity with simple graphs is required.

Learning objectives:

At the end of this course, I expect all students to:
- Become an informed reader of political scholarship.
- Understand critical features of the scientific method and apply such principles to the study of politics.
- Demonstrate a basic understanding of social statistical methods, terms and the interpretation of common statistical methodologies.
- Apply common statistical methods to answer research questions using public opinion data.

Statistics, Lies and Computers

The first half of this class explores the scientific method (formulating hypotheses) and providing an overview of political science research. The second half of the course provides an introduction to statistical analyses. Many students are often reticent about statistics because of concerns that the math will be boring or difficult. The instructor understands, often admits to being bad at math, and vividly recalls having tried to avoid Calculus and classes similar to POL222 as an undergraduate. The approach in this class is designed for everyone to be able to complete some basic analyses and interpret statistical results regardless of their comfort with math. In the process, this class should give students the ability to understand readings they encounter in political science, public policy and related courses with statistical tables, as well as providing a foundation so interested students can take additional courses to master social statistics. As a result, students in POL222 will have a choice between using Excel, a free online statistical tool that is very easy to use, or R, an open-source statistical package frequently used by programmers and advanced methodologists. All of these options can be purchased or used for free through the university on personal computers (the online tool can be used by anyone with a browser like a tablet).

Lectures, Office Hours, & Tutorials

All lectures will be recorded and posted to Quercus. Some lectures will be "live," but these lectures will take place using Blackboard Collaborate Ultra on Quercus so that students who are unable to "view" the lecture live will be able to view the video at their convenience.

POL222 was originally an evening course, designed to accommodate students who work during or provide child care during the day. Therefore, every Tuesday night from 6 pm to 7:30 pm, there will be a live lecture and/or office hours. One Tuesday evening, on , will be devoted to a midterm exam, but students who cannot take the test that evening may be accommodated earlier in the day with an alternative version of the test. Other "live" lectures or office hours will take place at other times, and the professor will be available for video conferences or phone calls by appointment.

The TA and/or the instructor will hold additional office hours focused on helping students complete the statistical worksheets before each deadline. The expectation is that such assistance will be available in the evening, but the timing will be determined through a student poll to find a time (or times) that works for the most students.

Other lectures will be delivered through a variety of means. Some lectures will be MP4 versions of the lectures given by the course instructor in 2018 and available on Quercus. Some material will be presented through recorded narrations of Powerpoint slides, and the rest of the material will be presented through Powerpoint slides and Blackboard Collaborate Ultra. Will the lectures are recorded for asynchronous student consumption, the Tuesday night "office hours" and Quercus discussion forums will allow students to ask questions of the instructor, share thoughts, participate in conversations raised by lecture materials and request clarifications of any subject or class concept not satisfactorily explained by the asynchronous lectures.

GRADING SCHEME	%	Due Date
Participation	3	
Reading Quizzes	5	May 7 (submit by May 14)^, May 14, May 28, & June 11
Article Summary	10	May 19
Worksheet 1: Hypotheses	5	May 15
Worksheet 2: Descriptive Statistics	5	May 29
Worksheet 3: Crosstabulations & t-tests	10	June 5
Worksheet 4: Regression	12	June 12
Midterm	25	May 21
Final Exam	25	TBA

^ Because this is near the start of the term, the quiz must be completed one week after the readings are covered, on May 17.

ASSIGNMENT DETAILS

NOTE: Complete details of the assignments will be available in separate hand-outs distributed on Quercus.

Worksheets

Worksheet 1: Hypotheses. A short worksheet intended to help you master writing hypothesis statements, transforming value statements into testable hypotheses, differentiating independent and dependent variables and identifying units of analysis. 5%

Worksheet 2: Descriptive Statistics. A worksheet designed to give you the opportunity to learn how to analyze variables in Excel and/or a free online statistical tool and communicate the relevant descriptive statistics (including central tendencies and measures of dispersion). 5%

Worksheet 3: Crosstabulations and t-tests. A worksheet to enable students to refine their ability to complete crosstabulations ("pivot tables" in Excel) and/or t-tests using Excel, R, or a free online statistical tool. 10%

Worksheet 4: Regression. For this worksheet you will run several multivariate regression analyses and interpret the results. 12%

Reading Quizzes

Below, you will find four class sessions highlighted with an asterisk. For these lectures, you will find an on-line open book quiz on that week's readings on Quercus. Each quiz includes five to ten multiple choice and/or true/false questions. A copy of the questions in a Word or PDF file can be consulted while you are completing the readings. When you are ready, please log into Quercus and submit your answers there. You will have one chance to take each quiz, so be sure you are ready to answer each question before opening the quiz on Quercus. Quizzes cannot be taken late.

Article Summary

A set of questions on one or two of the academic journal articles we read in class. In a sentence or two, you will report on the important question the article seeks to answer, identify competing perspectives of other scholars, summarize the article's findings, and describe the methods the author(s) employed to complete their study.

Exams

Midterm. A multiple choice test administered online on May 21 covering material introduced in class since the beginning of term. Most students will complete this test in 45 - 90 minutes. Expect many questions on key concepts explained in both readings and lectures, along with at least a few questions on readings that were not extensively covered in lecture to reward the most attentive and conscientious students. This test will be administered during the evening of May 21 but the instructor will strive to accommodate students with work, childcare obligations, or who are physically located many time zones away from Toronto, earlier in the day on May 21 or on May 22.

Final. A test with both multiple choice and short answer questions on material since the midterm (although some key concepts like hypotheses introduced early in the term may be revisited). Expect many questions that gauge your ability to interpret statistical tables and a few substantive questions on required readings.

Participation

On Quercus, students will have the opportunity to share thoughts and answer questions on discussion forums. This online participation options, along with [optional] live discussions, will provide the basis of a participation mark. 3%

Required Readings

Textbook-style readings are primarily found in two on-line, open source methodological textbooks:

Bhattacherjee, Anol, "Social Science Research: Principles, Methods, and Practices" (2012). Textbooks Collection, University of South Florida. 2nd Edition. Available in seven languages, including English, here: http://scholarcommons.usf.edu/oa_textbooks/3

Jenkins-Smith, Hank C., Ripberger, Joseph T., Copeland, Gary, Nowlin, Matthew C., Hughes, Tyler, Fister, Aaron L., Wehde, Wesley (2017). "Quantitative Research Methods for Political Science, Public Policy and Public Administration (With Applications in R)." https://shareok.org/handle/11244/52244

The information about social science research methods is what matters, rather than any particular reading. There are many texts that cover similar material, and little is "new." Students are encouraged to substitute or augment the above texts with any of the following, especially if such texts are already owned or students have a strong preference for printed materials. So, the text used during the fall and winter term for POL222 is recommended (one chapter is required):

Kellstedt, Paul M. and Guy Whitten. *Fundamentals of Political Science Research*, Cambridge University Press, 2nd or 3rd Edition

To help guide your reading, I will post a review guide for the midterm and/or a list of key terms. It will often be obvious which chapters from the above texts substitute for the on-line texts, but in the reading schedule below, I will also try to indicate which chapters substitute.

Most weeks, there are also required readings from academic journals and websites. All of these readings are available for free via the University of Toronto library or will be available on Quercus.

Accessibility Needs

I wholeheartedly share the University of Toronto's commitment to accessibility and hope that every student is given a fair opportunity to excel in this course. Students with diverse learning styles and needs are welcome in this course. I invite you to discuss any accessibility concerns about the course, the classroom or course materials with me and/or staffers at Accessibility Services. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services at 416-978-8060 or accessibility.services@utoronto.ca. Appointments and drop-in sessions for accessibility advisors and learning strategists are available. For more information, please visit http://studentlife.utoronto.ca/as

TOPIC SCHEDULE

Quizzes are administered on the readings on Blackboard on the weeks marked with a *

This is a partial list of the required readings. A full list of required readings and recommended alternative textbook chapters will be confirmed before the first day of class with the completion of the full syllabus.

Week 1

1A: **Scientific Method & Introduction** (Live but recorded using Blackboard Collaborate Ultra on Quercus at 6 pm on Tuesday, May 5)

Powner, Leanne. "Reading and Understanding Political Science" (2007)
https://www.leannecpowner.com/tchdocs/readingps.pdf

1B: **Scientific and other forms of knowledge*** (video)

Rostker, Bernard D. Susan D. Hosek and Mary E. Vaiana. "Gays in the Military: Eventually, New Facts Conquer Old Taboos." *Rand Review* Spring 2011.
http://www.rand.org/pubs/periodicals/rand-review/issues/2011/spring/gays.html

May 11   *Discussion on Quercus: Could you learn about a social event or phenomena from reading a novel? What advantages might novels have over scholarly research? In what situations might make novels preferable to academic non-fiction? How might novels be inferior to scholarly research?* Post to a discussion forum on Quercus for participation credit by midnight on Monday, May 11. A magazine article about this issue is on the forum as background reading for a very real controversy at universities today. Joining the discussion will result in participation credit.

Week 2

2A: **Causality** (video + office hours on Tuesday night, May 12)

2B: **Experiments and Control*** (video)

May 14: *Quiz* **1** on Scientific and other forms of knowledge; *Quiz* **2** on Experiments and Control readings due at 11:59 pm on Quercus

May 15: *Worksheet 1: Hypotheses* due at 11:59 pm on Quercus.

Week 3

3A: **Operationalization and Measurement** (video + office hours on Tuesday night, May 19)

Putnam, Robert, "Tuning in and turning out: the strange disappearance of social capital in America." *PS: Political science and politics*, December 1995.

May 19   *Article Summary* due at 11:59 pm on Quercus.

May 21 Midterm

Week 4

4A: **Descriptive Statistics** (Partially live+recorded on Tuesday night, May 26)

Bhattacherjee, Ch. 14

Jenkins-Smith, H. et al. Quantitative Research Methods for Political Science, Public Policy and Public Administration (With Applications in R): 3rd Edition, Ch. 3
https://shareok.org/handle/11244/52244

4B: **Probability and Sampling*** (Partially live+recorded via Bb Collaborate Ultra, Time TBA)

Murphy, Chad. "The evolution of the modern rhetorical presidency: A critical response." *Presidential Studies Quarterly* 38.2 (2008): 300-307.

May 28 *Quiz* **3** due at 11:59 pm on Quercus.

May 29 *Worksheet 2: Descriptive Statistics* due at 11:59 pm on Quercus.

Week 5

5A: **Bivariate Relationships** (Partially live+recorded on Tuesday night, May 26)

5B: **Introduction to Regression** (Recorded)

June 5 *Worksheet 3: Crosstabulations* due at midnight.

Week 6

6A: **Multivariate Regression Analysis** (Partially live+recorded on Tuesday night, June 2)

TBA

Wike, Richard and Nilanthi Samaranayake, "Where Terrorism Finds Support in the Muslim World: That May Depend on How You Define It - and Who Are the Targets," Pew Global Attitudes Project report, May 23, 2006, available at: http://www.pewglobal.org/2006/05/23/where-terrorism-finds-support-in-the-muslim-world/

6B: **Reading Advanced Analyses*** (Partially live+recorded via Bb Collaborate Ultra, Time TBA)

June 11: *Quiz* **4** on Reading Advanced Analyses due at 11:59 pm on Quercus.

June 12 *Worksheet 4: Regression* due at 11:59 pm on Quercus.