POLI210: Political Science Research Methods

Olivier Bergeron-Boutin

Fall 2021

E-mail: olivier.bergeron-boutin@mail.mcgill.ca
Office Hours: TBA
Office: TBA

Web: TBD
Class Hours: TR 8:35am-9:55am
Class Room: *online*

---

1 What is this course for?

This course is an introduction to research methods in political science. It will cover a broad range of topics, including questions of philosophy of science; causality and the difficult enterprise of causal inference; how to ask empirical questions about the political world (and which ones to ask!); formulating empirically testable hypotheses; measurement and data collection using surveys and interviews; and qualitative and quantitative data analysis techniques designed to test your hypotheses.

1.1 Pre-requisites – formal and informal

Formal: There are no pre-requisites for enrolling in this course. However, if you have already taken POLI311, you are not eligible to take this course. For those who matriculated in the fall of 2017 or later, POLI210 serves as a prerequisite for POLI311.

Informal: You do *not* need to have a math/stats background to succeed in this course. We will provide you with the tools to succeed regardless of your background.

1.2 Learning outcomes

- Become critical consumers of political science research and empirical claims in popular media.
- Acquire knowledge of important quantitative and qualitative empirical methods in the study of politics.
- Become acquainted with *R* – a free, open-source software that is highly marketable (this very syllabus and all course slides were created using *R*!)

2 Textbook and other resources

2.1 Textbook

The textbook for this course will be:

Berdahl, Loleen and Keith Archer. *Explorations: Conducting Empirical Research in Canadian Political Science* (4th edition). Oxford University Press.

You can purchase the print version at the McGill bookstore or rent a copy at redshelf. Note that we will be using the newer 4th edition.

2.2 Other resources

People learn in different ways and this is *especially true* when it comes to research methods. What works for me may not work for you! Fortunately, there are a lot of resources you can use:

- StackOverflow is a Q&A forum for programmers. If you type a question related to *R* in Google, chances are that a StackOverflow thread will show up!
- *Quantitative Social Science: An Introduction* by Kosuke Imai is an excellent textbook that can help you learn *R* and principles of statistics.
- *The Fundamentals of Political Science Research* by Kellstedt and Whitten is a widely-used textbook.

3 Labs: R and RStudio

In labs, you will be introduced to quantitative data analysis using the statistical software *R*, a free and open-source program. We will also be using RStudio, which is a graphical user interface that makes learning R easier. You can download *R* here; note that you need to choose the version that matches your operating system. You can download RStudio here. Try to do this as soon as possible! You will need *R* to complete most of the assignments.

4 Course and University policies

4.1 Lanuage of submission

In accord with McGill University's Charter of Student Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives." (Approved by Senate on 21 January 2009)

4.2 Academic integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures.

4.3 Copyright

© Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

4.4 Late submission

Late assignments will be penalized 5 percentage points (out of 100) per day. Late quizzes will not be accepted. Exceptions apply for illness, family emergency, or other extraordinary circumstances. You will need to provide documentation of your predicament and will be given more time to complete your assignment/quiz.

4.5 Re-grading

Students who wish to contest a grade for an assignment or exam must do so in writing (by email, sent to the instructor) providing the reasoning behind their challenge to the grade received within

two weeks of the day on which the assignments are returned. The TA who graded the assignment will re-grade your assignment, and may raise or lower the grade. If you are still unsatisfied after the re-assessment, you can re-submit the assignment to me (original copy with TA comments), along with your justification. I will then re-evaluate the assignment, but also reserve the right to raise or lower the grade. Please also see the department's guidelines.

5 Evaluation policy

- Assignments: 45%. There will be 6 assignments; assignment 1 is worth 5 points; assignments 2 through 6 are worth 10 points each. You are allowed to talk generally about the problem sets with your classmates, but you are expected to complete them individually. *You cannot share code with your classmates*.
  - Assignment 1, due on September 20th at 11:59pm, will simply ask to fill in a class survey on the platform *Qualtrics*. The data you provide here will be of use to create some interactive examples in class!
  - Assignment 2, due on October 4th at 11:59pm, will ask you to perform basic operations in *R* using the class survey: compute measures of central tendency, recoding variables, describing distributions.
  - Assignment 3, due on October 25th at 11:59pm, will ask you to work with experimental data from a famous political science article. It will address issues of causality.
  - Assignment 4, due on November 8th at 11:59pm, will focus on analyzing open-ended responses from our class survey as well as the case-study approach.
  - Assignment 5, due on November 22nd at 11:59pm, will ask you to work with data from the 2019 Canadian Election Study and will focus on significance tests, interpreting p-values, and interpreting measures of association.
  - Assignment 6, due on December 6th at 11:59pm, will focus on multivariate regression.
- Midterm: 20%. The midterm will be held on **October 19th**. Anything covered before then, including in lectures and in the readings, is fair game!

- Quizzes: 15%. There will be two quizzes. Again, anything covered in lectures or in the readings is fair game.

6 Class schedule

Week 1: Intro

- Lecture 1.1 (Sept 2nd): Reviewing the syllabus and course components. Differentiating between two types of social scientific research (normative vs empirical). Three types of inference in empirical research (causal, descriptive, predictive).
- Readings: None.

Week 2: The foundations of scientific research

- Lecture 2.1 (Sept 7th): We will cover some foundational questions: What makes science scientific? What are the principles of scientific research?
- Lecture 2.2 (Sept 9th): The steps in the scientific process. Quantitative and qualitative approaches. How a scientist behaves.
- Readings:

  - *Explorations* chapters 1-2.
  - The Supreme Court is Allergic to Math, FiveThirtyEight.
  - The social sciences are useless. So why do we study them?, by Andrew Gelman.
  - Noel, Hans. 2010. "Ten Things Political Scientists Know That You Don't." The Forum 8(3).

Week 3: Building theory and making hypotheses

- Lecture 3.1 (Sept 14th): What is a scientific "literature"? How do we come up with a research question, and what makes for a good one?
- Lecture 3.2 (Sept 16th): How to build theory: inductive vs deductive approaches. Formulating hypotheses. Hypothesis testing and refining theory.
- Readings:
  - *Explorations* chapters 2 and 4.

Week 4: Causality

- Lecture 4.1 (Sept 21st): Introduction to the potential outcomes framework and the fundamental problem of causal inference. Thinking counterfactually. Causal vs correlational relationships.
- Lecture 4.2 (Sept 23rd): How random assignment solves the problem of self-selection. Experimental methods in political science. Internal vs external validity. The search for quasi-experiments.
- Readings:
  - Druckman, James N., Donald P. Greene, James H. Kuklinski, and Arthur Lupia. 2011. "Experiments." In *Cambridge Handbook of Experimental Political Science*, Cambridge: Cambridge University Press, 15–26.
  - Butler, Daniel M., and David E. Broockman. 2011. "Do Politicians Racially Discriminate Against Constituents? A Field Experiment on State Legislators." *American Journal of Political Science* 55(3): 463–77.

Week 5: Conceptualization and measurement

- Lecture 5.1 (Sept 28th): Why do we even need concepts? How do define concepts? How do we differentiate one concept from another? The ladder of generality and "definitional gerrymandering"
- Lecture 5.2 (Sept 30th): 4 levels of measurement. Measurement obstacles: random and non-random measurement error; social desirability bias. Measurement validity.
- Readings:
  - Collier, David, and Steven Levitsky. 1997. "Democracy with Adjectives: Conceptual Innovation in Comparative Research." *World Politics* 49(3): 430–51.
  - Mansbridge, Jane. 2003. "Rethinking Representation." *American Political Science Review* 97(4): 515–28.
  - Measurement Validity by Collier?

Week 6: Case studies and the comparative method

- Lecture 6.1 (Oct 5th): Two types of case studies: descriptive vs theory-testing. Why focus on a single case? Scope conditions and generalization to other cases. What sort of evidence do we use?
- Lecture 6.2 (Oct 7th): Goals of the comparative method. How to select cases: purposive sampling. Mill's method of similarity and method of difference. Can we establish causal relations?
- Readings:
  - *Explorations* chapter 10.
  - Geddes, Barbara. 1990. "How the Cases You Choose Affect the Answers You Get: Selection Bias in Comparative Politics." Political Analysis 2: 131–50.

Week 7: Interviews and focus groups

- Lecture 7.1 (Oct 15th): Guest lecture.
- Readings:
  - *Explorations* chapter 7.

Week 8: Midterm + survey research

- Lecture 8.1 (Oct 19th): MIDTERM EXAM.
- Lecture 8.2 (Oct 21st): How do we sample for polls? The promises and pitfalls of survey research. What happened in 2016 and 2020 – are polls broken?
- Readings:
  - Berinsky, Adam J. 2017. "Measuring Public Opinion with Surveys." Annual Review of Political Science 20: 309–29.

Week 9: Descriptive statistics and the basics of statistical inference

- Lecture 9.1 (Oct 26th): Measures of central tendency and measures of variance. Confidence intervals. The central importance of distributions.
- Lecture 9.2 (Oct 28th): Measures of association for different types of variables. Linear vs non-linear relationships.
- Readings:
  - *Explorations* chapter 12.

Week 10: Hypothesis testing; research ethics and the replication crisis

- Lecture 10.1 (Nov 2nd): Difference-in-means and hypothesis testing. p-values and what they do/don't tell you.
- Lecture 10.2 (Nov 4th): Research ethics and the replication crisis.
- Readings:
  - Lee, Stephanie M. 2018. "Here's How Cornell Scientist Brian Wansink Turned Shoddy Data Into Viral Studies About How We Eat." *Buzzfeed News*.
  - Singal, Jesse. 2015. "The Case of the Amazing Gay-Marriage Data: How a Graduate Student Reluctantly Uncovered a Huge Scientific Fraud." *New York Magazine*.

Week 11: Linear regression

- Lecture 11.1 (Nov 9th): The least squares algorithm and its mechanics.
- Lecture 11.2 (Nov 11th): Interpreting regression output. Substantive vs statistical significance.
- Readings: