



POL222H1F: Introduction to Quantitative Reasoning I
University of Toronto
Fall 2020

I Basic information

Mode of course delivery: Online Asynchronous

Delivery Instructions: Lectures will be delivered online asynchronously.
Tutorials will be delivered online synchronously.

Instructor: Alejandro García Magos, PhD

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Teaching Assistants:

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II Course overview

Course Description

POL222 introduces undergraduate students to the logic of social science. To this end, students will be learning how to properly understand and critically assess scientific research. A critical assessment means that propositions and arguments are considered persuasive only when accompanied by reliable findings grounded in sound methodological design.

The course is divided in four parts. In Part I, we will learn how to approach politics scientifically. In Part II, we will explore experimental research designs. In Part III, we will learn how to conduct observational research. Finally, in Part IV, we will explore special topics on quantitative reasoning.

By the end of the course, students are expected to understand:

1. The idea of *science* in political science
2. The strengths and limitations of the scientific method
3. The difficulty of establishing a causal relationship
4. The distinction between quantitative and qualitative research

In addition, students are expected to become a more sophisticated consumer of information and academic research, and improve their writing style for political analysis.

The course emphasizes the importance of statistical literacy but no mathematical background is required beyond a solid grasp of basic arithmetic and algebra.

Note: POL222 will be followed by POL232 *Introduction to Quantitative Reasoning II*, an intermediate quantitative methods course focused on data analysis that is typically taught in a computer lab. POL232 builds on students' knowledge of the fundamentals of political science research and basic statistical literacy covered in POL222. The learning goal is to advance students' capacity to work and analyze data independently using RStudio. The learning topics are the following:

1. Statistical inference and linear regression
2. Data analysis using RStudio
3. Effective communication of quantitative information (data storytelling)

The common objective of POL 222 and POL 232 is to prepare students to become critical consumers of information and academic research, and help them to improve their research and report-writing skills.

Required Readings (POL222 only):

Paul M. Kellstedt and Guy D. Whitten, *The Fundamentals of Political Science Research, Second Edition* (Cambridge University Press, 2013). Available online through the University of Toronto Libraries.

There will also required readings from academic journals and websites. All of these readings will be available for free via the University of Toronto Libraries or will be posted on Quercus.

III Organization of the course

The class Quercus site will be the primary site through which lectures will be posted, class announcements will be made, and assignments will be distributed and marked. The Discussion Board on Quercus will be the primary site by which you can ask questions about the course materials and get them answered. It is your responsibility to obtain access to the class Quercus site and regularly check it.

IV Lectures

Lectures will be pre-recorded, and delivered online asynchronously via Quercus. Students should make an effort to watch them the day they are posted.

V Teaching Assistants

There are a five teaching assistants for this course whose main duties are helping students with their assignments and grading them. Students will be divided in sections and there will be one TA for each of them. Normally, the TA for your section will be the grader of your essay and your primary point of contact for all class-related matters. All requests for extension or waiver regarding required assignments must be made to your designated TA. Please include your full name, the student number, tutorial time slot, and the name of your tutorial instructor in your email on these requests.

VI Grading and Evaluation (subject to update)

Two Essay Assignments:	55%	
<i>Essay 1:</i>	20%	<i>Due: October 16th (Friday)</i>
<i>Essay 2:</i>	35%	<i>Due: December 4th (Friday)</i>
Final Assessment:	30%	<i>Due: TBD (during the Dic. assessment period)</i>
Tutorial Participation:	15%	

>>> Essay Assignments

Extension for the essay assignments may be made only when there is a legitimate reason, such as an unforeseeable medical emergency, an accessibility issue, religious observances, and a family emergency, and there is an acceptable official documentation, which verifies the specific reason given, such as the UofT Verification of Student Illness or Injury form, the Accessibility Services Letter, and the College Registrar's Letter.

Students who know in advance they will need an extension for a legitimate reason should contact the teaching assistant in charge of grading your assignments as early as possible before the deadline. Those who missed the deadline for a legitimate, unforeseeable reason should contact the teaching assistant as soon as possible and no later than one week after returning to class.

Late assignments will be subject to a late penalty of 2% per day (including weekends) of the total marks for the assignment. Accommodations due to late registration into the course will not be approved.

>>> Final Assessment

Final Assessment not completed before the due date will receive a grade of zero. The due date will be clearly specified on the class Quercus site. It is your responsibility to check this due date and complete the assessment before then.

If you cannot complete the assessment by its deadline for a legitimate reason you should notify your TA immediately. An official documentation to verify the specific reason given, such as the UofT Verification of Student Illness or Injury form, the Accessibility Services Letter, and the College Registrar's Letter, will be required.

As in the essay assignments, computer-related problems, such as the crash of your computer, a slow internet connection, and an occasional slow response of the server, will not be considered as an acceptable reason to request for a waiver. I strongly suggest you avoid a last-minute completion or submission of the assessment to avoid a last-minute hassle and technical problems.

>>> Tutorial Participation

Tutorial Participation mark is based on your attendance in five tutorial sessions, each of them weighing 3 percent hence the 10 percent evaluation. If you have to miss one or more tutorial sessions for a legitimate reason, the participation in these sessions may be waived as long as you provide official documentation, such as the UofT Verification of Student Illness or Injury form, the Accessibility Services Letter, and the College Registrar's Letter, which verifies the specific reason given.

VII How to Succeed in This Course

Read this syllabus. Carefully follow the lectures. Ask help from your TA when writing the Essays. Hand in your assignments on time. Study for the Final Assessment.

VIII Late Penalties and Extension

All work is late if submitted after the date and time specified. To ensure fairness, the late-penalty policy specified below will be strictly enforced. Conflict with other class's assignment/exam schedule, leaving for a non-academic trip, or vacation is not an acceptable reason to miss the assignments or request an extension.

IX Grade Appeals

Grade appeals must be received within two weeks from when the grade is assigned. Before making a formal grade appeal, you are required to raise your questions to and discuss with your grader, who is normally your tutorial instructor. If you still believe the grade you received is not appropriate after discussing with the grader, you may make an appeal to the instructor. When you make an appeal, you are required to submit a brief documentation substantiating why you believe your grade is not appropriate. Once the grade appeal is received, your assignment will be re-graded with fresh eyes by another teaching assistant who did not give your original mark. Please note that the re-graded mark may go up or down from the original mark. The new mark will be your final mark whether it goes up or down from the original.

X Communication Policy

The large size of this class and the mode of delivery of the course make it necessary to maintain the following policy with respect to communication with the instructor and TAs.

1. Discussion Board

We will use the Discussion Board on the class Quercus site as the main medium through which you can ask questions regarding class materials and get answers. Given the nature of the course materials and a large size of the class, someone else may have the same question as yours and s/he would benefit from your posting the question and getting an answer through the Discussion Board.

You are encouraged to post an answer to the questions posted by your classmates on the Discussion Board so that we can maintain a mutually-supporting learning community from which all of you will benefit.

Discussion Board questions will be normally addressed within 24 hours, except on weekends, by one of the teaching assistants in charge.

3. Email Communications

If you have any questions of personal nature (e.g., deadline extension for a legitimate reason, grade appeal), you should email the TA and expect a response within two working days. Please start the subject heading of your email with "POL222:..."; if you do not, your email is likely to end up in the wrong folder and may be missed.

If your questions are of substantive nature (i.e. academically relevant for other classmates) please post these questions on the Discussion Board

If you send teaching assistants or the instructor a question of substantive nature, it will be posted on the Discussion Board and answered by one of the teaching assistants in charge. You will get your questions addressed more quickly if you post your questions directly on the Discussion Board, as the one on duty on that day may not be the teaching assistant to whom you would send your email.

I will try to respond to emails within 48 hours during the week or 72 hours over the weekend, and I usually respond to student emails in the mornings.

4. Essay Assignments

You may post general questions on the essay assignments on the class Discussion Board. If you have a question specific to your essay idea that is not appropriate to post on the Discussion Board, you are best advised to contact the teaching assistants.

Please note that neither the instructor nor teaching assistants will be able to review your draft essay when you seek advice.

5. Non-response

Please note that the instructor and teaching assistants will not be able to answer email or Discussion Board questions during weekends.

In the case of your questions of substantive nature on the Discussion Board or those of personal nature over email not answered within two working days (excluding weekends), send the teaching assistant an email to let him/her know they have not been addressed. Please include “POL222: Unanswered Question” in the subject heading of your email.

6. Office Hours

There will also be office hours held by teaching assistants before the essay assignments’ due dates and the Final Assessment. Specific schedules of the instructor and teaching assistants’ office hours will be posted on the class Quercus site.

XI Accessibility

The University of Toronto is committed to accessibility. If you require accommodation for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services at www.accessibility.utoronto.ca, accessibility.services@utoronto.ca, or (416) 978-8060 as soon as possible.

XII Academic Integrity

Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves.

You are expected to be familiar with the Code of Behaviour on Academic Matters, available at <https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019>, which is the rule book for academic behaviour at U of T. Potential offences include, but are not limited to, plagiarism, cheating on tests and exams, fraudulent medical documentation and improper collaboration on marked work.

Please read more about Academic Misconduct here: <https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity/academic-misconduct>. For further information on plagiarism, visit <http://advice.writing.utoronto.ca/using-sources/>. This list is part of the Advice on Academic Writing at the University of Toronto (<http://advice.writing.utoronto.ca/>). There are valuable resources for you in this website.

The University of Toronto treats cases of academic misconduct seriously. All suspected cases of academic dishonesty will be examined following the procedures outlined in the Code. The consequences for academic misconduct can be severe, including a failure in the course and a notation on your transcript.

I take violations of academic integrity very seriously.

If you have questions about how best to cite another's work or facts in the public domain, please write your TA. When in doubt, cite. I recommend the Chicago Manual of Style's author-date format https://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-2.html. If you have questions about whether an action qualifies as misconduct, please talk to your TA or me.

XII General Expectations

I am passionate about learning and I am dedicated to creating a worthwhile learning experience for you. Accordingly, I expect that you want to learn, grow, and improve your research skills.

XIII Class Schedule and Readings

Class schedule and the assigned readings for each lecture are specified below. During the semester, the lecture schedule may be adjusted according to the actual progress of the class. If this is the case, the due dates of assignments may also be modified. In addition, some assigned readings may be replaced by others, and there may be additional readings. If this occurs, you will be notified in advance.

Readings listed for each class are required readings, unless explicitly marked as recommended. In addition to the chapters of Kellstedt and Whitten, the readings include book chapters, scientific articles, and research papers published in academic journals. These readings will be used as examples in the lectures to illustrate the variety of quantitative empirical research designs. **When you go through these readings, skip the technical details and focus on the big picture: the arguments made by the authors, their empirical research design, and how they answer the causal question of their interest.**

XIII Copyright disclaimer

All images used in the course material are strictly for education purposes and fall under the Fair Dealing Exception.

PART I. APPROACHING POLITICS SCIENTIFICALLY

Week 1. September 13

A political “science”?

Topics covered:

- a) The *science* in political science
- b) The postulates of science
- c) The methodology of science
- d) Limitations of the scientific method

>> Kuhn, Thomas S. *The structure of scientific revolutions*. University of Chicago press, 2012. Chapters I and II, and Postscript. <http://www.columbia.edu/cu/tract/projects/complexity-theory/kuhn-the-structure-of-scienc.pdf>

>> Naughton, John. *Thomas Kuhn: the man who changed the way the world looked at science*. The Guardian. Aug. 2012 <https://www.theguardian.com/science/2012/aug/19/thomas-kuhn-structure-scientific-revolutions>

>> Michael G. Roskin. *Political science*. Encyclopedia Britannica. (Read up until *The early 20th century*) <https://www.britannica.com/topic/political-science/19th-century-roots-of-contemporary-political-science>

September 20

How do we know what we know?

Topics covered:

- a) Dependent and independent variables
- b) Covariation
- c) Theory and hypothesis
- d) Causal relationship
- e) Operationalization
- f) Causal mechanisms

>> Kellstedt and Whitten, Chapter 1

>> Elster, J. 1989. *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press. (Part One. Mechanisms)

>> Hedström, Peter, Richard Swedberg, and Gudmund Hernes, eds. *Social mechanisms: An analytical approach to social theory*. Cambridge: Cambridge University Press, 1998. (First Chapter: Social mechanisms: An introductory essay)

>> *Recommended*: Kellstedt and Whitten, Chapter 2.

>> *Recommended*: Gerring, J. (2008). “The mechanistic worldview: Thinking inside the box.” *British Journal of Political Science*, 38(1), 161-179.

September 27

How do we cope with complexity?

Topics covered:

- 1) Theory building
- 2) Bivariate and multivariate relationships
- 3) Deterministic and probabilistic relationships
- 4) Causal hurdles to establish causal relationships
- 5) Confounding variables
- 6) Spurious relationships
- 7) Omitted-variable bias

>> Kellstedt and Whitten, Chapter 3

>> "Confounding Variables Can Bias Your Results." *Statistics By Jim* <https://statisticsbyjim.com/regression/confounding-variables-bias/#comments>

>> PAD 705 Handout: Omitted Variable Bias. Rockefeller College, University at Albany. <https://www.albany.edu/faculty/krethema/PAD705/SupportMat/OVB.pdf>

OVB.pdf

>> Garza-Rodriguez, Jorge. "Tourism and poverty reduction in Mexico: An ARDL cointegration approach." *Sustainability* 11.3 (2019): 845.

>> Marie, Olivier. "Police and thieves in the stadium: measuring the (multiple) effects of football matches on crime." *Journal of the Royal Statistical Society. Series A: Statistics in Society* 179.1 (2016): 273-292.

>> Levy, Becca R., Pil H. Chung, and Martin D. Slade. "Influence of Valentine's Day and Halloween on birth timing." *Social Science & Medicine* 73.8 (2011): 1246-1248.

>> Dahl, Gordon, and Stefano DellaVigna. "Does movie violence increase violent crime?." *The Quarterly Journal of Economics* 124.2 (2009): 677-734.

>> Kam, Cindy D., and Carl L. Palmer. "Reconsidering the effects of education on political participation." *The Journal of Politics* 70.3 (2008): 612-631.

>> *Recommended:* Kellstedt and Whitten, Chapter 2.

>> *Recommended:* Orwell, George. "Politics and the English language." (1946). <http://people.ucalgary.ca/~rseiler/orwell46.htm>

>> Billig, Michael. "*Learn to write badly: How to succeed in the social sciences.*" Cambridge, UK: Cambridge (2013). (Chapter 9. Conclusion and recommendations).

*** Tutorial Session 1: Causal Relationship (Sep. 28 - Oct. 2)

PART II. EXPERIMENTAL RESEARCH

October 4

Laboratory Experimentation in Political Science

Topics covered:

- 1) Experimental research designs
- 2) Control and treatment groups
- 3) Random assignment and sampling
- 4) Population
- 5) External and internal validity
 - >> Kellstedt and Whitten, Chapter 4.1-4.2
 - >> Gilliam Jr, Franklin D., and Shanto Iyengar. "Prime suspects: The influence of local television news on the viewing public." *American Journal of Political Science* (2000): 560-573.
 - >> Bailenson, Jeremy, Shanto Iyengar, Nick Yee, and Nathan Collins. 2009. "Facial Similarity between Candidates and Voters Causes Influence." *Public Opinion Quarterly* 72: 935–61.
 - >> Garramone, Gina M., Charles K. Atkin, Bruce E. Pinkleton, and Richard T. Cole. "Effects of negative political advertising on the political process." *Journal of Broadcasting & Electronic Media* 34, no. 3 (1990): 299-311.
 - >> Stephen Ansolabehere, Shanto Iyengar, Adam Simon, and Nicholas Valentino. 1994. "Does Attack Advertising Demobilize the Electorate?" *American Political Science Review* 88(4).
 - >> Campos-Vazquez, Raymundo M., and Luis A. Mejia. "Does corruption affect cooperation? A laboratory experiment." *Latin American Economic Review* 25.1 (2016): 1-19.

*** Tutorial Session 2: Peer Discussion on Essay 1 (Oct.5-9)

October 11

Thanksgiving Holiday

*** Essay 1 Due (Oct. 16, Fri, 11:59pm)

October 18

Field Experimentation

Topics covered:

- 1) Conducting field research
- 2) Natural experiments
- 3) Replication

>> Kellstedt and Whitten, Chapter 4.1-4.2 (re-read)

***** Below there are six examples of field experiments. Please read at least three.**

>> Gerber, Alan S., and Donald P. Green. "The effect of canvassing, direct mail, and telephone contact on turnout: a field experiment." *Am. Polit. Sci. Rev* 94 (2000): 653-63.

>> Ansolabehere, Stephen, et al. "Does attack advertising demobilize the electorate?." *American political science review* (1994): 829-838.

>> Chong, Alberto, et al. "Does corruption information inspire the fight or quash the hope? A field experiment in Mexico on voter turnout, choice, and party identification." *The Journal of Politics* 77.1 (2015): 55-71.

>> Beath, Andrew, Fotini Christia, and Ruben Enikolopov. "Empowering women through development aid: Evidence from a field experiment in Afghanistan." *American Political Science Review* (2013): 540-557.

>> Johnson, Mark B., and John D. Clapp. "Impact of providing drinkers with "know your limit" information on drinking and driving: A field experiment." *Journal of studies on alcohol and drugs* 72.1 (2011): 79-85.

>> Turner, Joel. "The messenger overwhelming the message: Ideological cues and perceptions of bias in television news." *Political Behavior* 29.4 (2007): 441-464.

***** Below there are two examples of natural experiments. Please read at least one.**

>> Llach, Juan, et al. "Do longer school days have enduring educational, occupational, or income effects? A natural experiment in Buenos Aires, Argentina [with comment]." *Economía* 10.1 (2009): 1-43.

>> Hanna, Rema, and Paulina Oliva. "The effect of pollution on labor supply: Evidence from a natural experiment in Mexico City." *Journal of Public Economics* 122 (2015): 68-79.

>> *Recommended:* Sherman, Lawrence W., and Richard A. Berk. "The specific deterrent effects of arrest for domestic assault." *American sociological review* (1984): 261-272.

>> *Recommended:* Duflo, Esther, Michael Kremer, and Jonathan Robinson. "Nudging farmers to use fertilizer: Theory and experimental evidence from Kenya." *American economic review* 101.6 (2011): 2350-90.

October 25

Survey Experimentation

Topics covered:

- 1) External and internal validity
- 2) Random assignment and sampling
 - >> Kellstedt and Whitten, Chapter 4.1-4.2 (re-read)
 - >> Corbacho, Ana, et al. "Corruption as a self-fulfilling prophecy: evidence from a survey experiment in Costa Rica." *American Journal of Political Science* 60.4 (2016): 1077-1092.
 - >> Horowitz, Michael C., and Matthew S. Levendusky. "Drafting support for war: Conscripted and mass support for warfare." *The Journal of Politics* 73.2 (2011): 524-534.
 - >> Tomz, Michael R., and Jessica LP Weeks. "Public opinion and the democratic peace." *American political science review* (2013): 849-865.
 - >> Corstange, Daniel, and Nikolay Marinov. "Taking sides in other people's elections: The polarizing effect of foreign intervention." *American Journal of Political Science* 56.3 (2012): 655-670.

*** Tutorial Session 3: Experimental Research (Oct. 26 - 30)

PART III. OBSERVATIONAL RESEARCH

November 1

The Logic of Observational Research

Topics covered:

- 1) Aggregate data
- 2) Data set dimensions
- 3) Spatial and time units
- 4) Time-series observational studies
- 5) Cross-sectional observational studies
- 6) Time-series-cross-section data analysis
 - >> Kellstedt and Whitten, Chapters 4.3-4.4.
 - >> Basagaña, Xavier, et al. "High ambient temperatures and risk of motor vehicle crashes in Catalonia, Spain (2000–2011): a time-series analysis." *Environmental health perspectives* 123.12 (2015): 1309-1316.
 - >> Arvate, Paulo Roberto. "Electoral competition and local government responsiveness in Brazil." *World Development* 43 (2013): 67-83.
 - >> Cleary, Matthew R. "Electoral competition, participation, and government responsiveness in Mexico." *American Journal of Political Science* 51.2 (2007): 283-299.

>> *Recommended*: Hecock, R. Douglas. "Electoral competition, globalization, and subnational education spending in Mexico, 1999–2004." *American Journal of Political Science* 50.4 (2006): 950-961.

>> *Recommended*: Menaldo, Victor. "The middle east and north Africa's resilient monarchs." *The Journal of Politics* 74.3 (2012): 707-722.

*** Tutorial Session 4: Peer Discussion on Essay 2 (Nov. 2 - 6)

November 9 - 13

Fall Reading Week

November 15

Bivariate and Multiple Regression Models

Topics covered:

1) Statistical model

2) Regression model

3) Parameter estimates

4) How Can We Account for Confounding Variables?

>> Kellstedt and Whitten, Chapters 8.1-8.2.

>> Kellstedt and Whitten, Chapters 9.1-9.2, 9.4, 9.8.

PART IV. SPECIAL TOPICS

November 22

Measurement & Statistical Inference

Topics covered:

1) Concept formation

>> Kellstedt and Whitten, Chapter 5.1-5.3, 5.4, 5.8, 6.1.

>> Gonzalez-Ocantos, Ezequiel, et al. "Vote buying and social desirability bias: Experimental evidence from Nicaragua." *American Journal of Political Science* 56.1 (2012): 202-217.

>> Andreas Schedler. "Concept Formation." In *International Encyclopædia of Political Science*, Bertrand Badie, Dirk Berg-Schlosser, and Leonardo Morlino, eds., (London: Sage 2011)

>> Giovanni Sartori. "Concept Misformation in Comparative Politics." *The American Political Science Review* 64.4 (1970): 1033-1053.

>> John Gerring. "What makes a concept good? A criterial framework for understanding concept formation in the social sciences." *Polity* (1999): 357-393.

>> Lisa Weeden, "Conceptualizing Culture," *American Political Science Review* 96(4), 2002.

>> David Collier and James E. Mahon Jr., "Conceptual 'stretching' revisited: Adapting categories in comparative analysis." *American Political Science Review* (1993): 845-855.

November 29

Multiple Methods. Cases and Case Selection

Topics covered:

- 1) The gap between qualitative and quantitative research
- 2) Case selection
- 3) How to mix methods

>> Barbara Geddes, "How the Cases you Choose Affect the Answers You Get: Selection Bias in Comparative Politics," *Political Analysis* 2, 1990: 131-150

>> James D. Fearon and David D. Laitin, "Integrating Qualitative and Quantitative Methods," In *The Oxford Handbook of Political Methodology*, 2008

>> Jason Seawright and John Gerring. "Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options." *Political Research Quarterly* (June 2008) 61 (2): 294-308

>> Mainwaring, Scott, and Aníbal Pérez-Liñán. "Lessons from Latin America: Democratic breakdown and survival." *Journal of Democracy* 24.2 (2013): 123-137.

>> F. Douglas Dion, "Evidence and Inference in the Comparative Case Study," *Comparative Politics* 30(2), January 1998: 127-146

>> John Gerring. "What is a Case Study and What is it Good For?" *American Political Science Review* (2004), 98(2): 341-354

>> Edward Schatz and Elena Maltseva. "Assumed to be Universal: The Leap from Data to Knowledge in the American Political Science Review." *Polity* 44.3 (2012): 446-472.

*** Tutorial Session 5: Observational Research (Nov. 30 – Dec. 4)

*** Essay 2 Due (Dec. 4, Fri., 11:59pm)

December 3

Wrap-Up

Syllabus Change Policy

The policies and contents of this syllabus may be changed by the instructor with advanced notice. If any, such a change will be announced during lectures.