POL222H1F: Introduction to Quantitative Reasoning I
University of Toronto
Fall 2015

Meeting Room:	UC 140
Meeting Time:	L0101: Monday, 12:00pm–2:00pm
	L5101: Monday, 6:00pm–8:00pm
Instructor:	Kenichi Ariga
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Office Hours:	Tuesday, 10:00am–12:00pm

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	TBA	TBA

Course Description and Objectives

Quantitative empirical analysis has become increasingly an important part of political science research — and social sciences in general — and public policy debates. The results of statistical analysis on quantitative data, such as opinion polls, election results, frequency of armed conflicts, and incidence of violence, can be seen in many research articles and books on political science and various reports on divergent policy issues published by governments, think tanks, non-profit organizations, and news media. Ability to properly understand and critically assess the results of quantitative statistical analysis has become an invaluable asset for any individuals who are interested in a wide range of political, economic, social, and policy issues.

For political science majors, two consecutive introductory courses on quantitative empirical methodology are offered (POL222 & 232). This course, "POL222 Introduction to Quantitative Reasoning I," is the first of the sequence and required for all political science majors. By the end of this course, students are expected to have developed a basic understanding of:

1. The characteristics of the scientific studies of political science, especially those employing quantitative empirical analysis, and the inherent difficulties of establishing a causal relationship between the political/economic/social/policy outcomes of interest;

2. Representative empirical research strategies to investigate the causal relationship of political/economic/social/policy phenomena of interest (a.k.a. *research designs*), and various threats to the validity of different research designs; and

3. How to use *descriptive statistics* and *visualization* tools to summarize and interpret the nature of a political/economic/social/policy phenomenon or characteristic of interest and the relationship between two or more of them.

"POL232 Introduction of Quantitative Reasoning II" (Winter 2016) will be the elective follow-up course and continue to introduce important foundations of quantitative empirical methodology. Those who will have found that the topics covered in POL222 are of interest are encouraged to take POL232. Students who choose to take POL232 will be exposed to:

4. The theoretical foundations of *statistical inference*, in which we learn about the characteristics and relationships in a large population and a general social process which generates the events of our interest from sample observations; and

5. The very basics of statistical computing to conduct simple quantitative analyses of social science data.

The common objective of these classes is to better prepare the students to become educated readers and active participants in social science research and public policy debates.[1]

By nature, the class will involve intensive study of theory and workings of quantitative methods; however, the application to political science research will be emphasized throughout the course.

Required Textbook

> Paul M. Kellstedt and Guy D. Whitten, *The Fundamentals of Political Science Research*, *Second Edition* (Cambridge University Press, 2013).

The textbook is available at the UofT BookStore. All other readings on the syllabus will be made available through the class Blackboard site.

Blackboard / Learning Portal

The class Blackboard site (https://portal.utoronto.ca/webapps/portal/frameset.jsp) or the Learning Portal will be the primary means through which class announcements and assignments will be distributed. Readings other than the above textbook, lecture slides, and assignments will be made available in the class Blackboard site as well. Its Discussion Board will be the primary method by which you will ask questions about the course materials and get them answered (more on this below).

Please note that important announcements and updates will not be sent to you via email but posted on the class Blackboard site. It will be your responsibility to obtain access to the class Blackboard site and regularly check it. There will be an important update to the class Blackboard site at least once a week.

Lecture Slides / In-class Exercises

Lecture slides will be made available by 10:00am of the lecture day on the class Blackboard site. You may print out the lecture slides and bring them to the class. Note that a few slides, such as graphics and visual effects, may be taken out from the set made available on the class

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[1] There is also an advanced course on quantitative empirical methodology, "POL419 Quantitative Methods and Data Analysis," in which students learn the theoretical framework, research designs, and estimation methods for *causal inference*.

Blackboard site. If substantively important slides are taken out, you will be notified of this during lectures.

Occasionally, there will be in-class exercises during lectures. These materials will be made available only in class and not posted on the Blackboard.

Grading and Evaluation

Your grade of the course will be based on the following materials with the weights given:

➤ Three Essay Assignments: 70% total
  o Best scored essay: 25%
  o Second-best essay: 25%
  o Third-ranked essay: 20%

Essay 1	Posted:	Sep. 28 (Mon.)	Due:	Oct. 19 (Mon.)
Essay 2	Posted:	Oct. 19 (Mon.)	Due:	Nov. 9 (Mon.)
Essay 3	Posted:	Nov. 16 (Mon.)	Due:	Dec. 7 (Mon.)

Each of the three essay assignments corresponds to the three parts of the class. In these essay assignments, you will be given an opportunity to practice applying the concepts and methods of quantitative empirical methodology for political science research that you will have learned in the class.

➤ Three Online Problem Sets: 21% (7% each)

Problem Set 1	Posted:	Sep. 28 (Mon.)	Due:	Oct. 2 (Fri.)	7%
Problem Set 2	Posted:	Oct. 26 (Mon.)	Due:	Oct. 30 (Fri.)	7%
Problem Set 3	Posted:	Nov. 30 (Mon.)	Due:	Dec. 4 (Fri.)	7%

The three problem sets will assess your understanding of the class materials. All problem sets will be posted and your responses will be submitted through the class Blackboard site. Each problem set has questions that focus on the subjects covered immediately prior to it, but it may also have questions, which are cumulative. By completing these problem sets, you are expected to progressively build knowledge on quantitative empirical methodology in political science.

➤ Class Participation (Tutorials and Online Feedback Survey): 9%

Your class participation mark will be based on your participation in the eight tutorial sessions (more on this below) and the online feedback survey on the class undertaken at the end of the semester. Each of these nine opportunities (eight tutorials and one feedback survey) will count 1% toward your final mark.

Turnitin

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms

that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Students who wish to not use Turnitin.com may make an alternative arrangement with the instructor. They will need to let the instructor know well before the deadline of the assignment and ask for an alternative way to submit the essay. They will be required to save every version/draft of their essay electronically, and submit all of them at the time they submit the essay. They will also be required to hand in all notes, outlines, and bibliographic research at the same time.

Late Penalties

All work is late if submitted after the date and time specified as the due date.

- Essay assignments handed in late will result in a penalty of <u>10-percentage-points reduction per day</u> (e.g., from 80% to 70%). Submitting an essay within 24 hours from the due date and time will be considered one day late; submitting after 24 hours but before 48 hours will be two days late, and so forth. Essays handed in <u>more than five calendar days late</u> will receive <u>a zero grade</u>.

- Problem sets not completed before the due date will receive a zero grade. As you will be able to work on the problem sets online through the Blackboard, whatever you will have completed before the due date and time will be considered your submission and graded.

To ensure fairness, this policy will be strictly enforced. Note that computer-related problems will not be an acceptable excuse for submitting your work late. For this reason, I strongly suggest you avoid a last-minute submission of assignments through the class Blackboard site. I also suggest you take a backup of the electronic files of your draft essay frequently.

Extension

Extension for the essay assignments may be granted only when there is a legitimate reason, such as a medical emergency and an accessibility issue, and there is an acceptable official documentation, which verifies the specific reason given, such as the UofT Medical Certificate, the College Registrar's Letter, and the Accessibility Services Letter. Students who know in advance they will need to request an extension for a legitimate reason should contact the instructor as early as possible before the deadline. Those who missed the deadline for a legitimate, unforeseeable reason should contact the instructor as soon as possible and no later than one week after returning to class.

Those who will have missed an online problem set for a legitimate reason will be waived for that problem set rather than being given an extension, and their total mark of the problem sets (21% of the final mark) will be determined by the rest of the problem sets with each problem set readjusted to weigh equally. An official documentation to verify the specific reason given, such as the UofT Medical Certificate and the College Registrar's Letter, will be required for this waiver.

Conflict with work schedule and other class's assignment schedule, leaving for a non-

academic trip, or vacation is not an acceptable excuse to miss the assignments or request an extension.

Grade Appeals

Grade appeals must be received within three weeks from when the grade is assigned. When you make appeals, you are required to submit a 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 a 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.

Teaching Assistants

There will be four teaching assistants for this course, whose main duties are leading tutorial sessions, grading assignments and other student contacts. There will also be office hours held by teaching assistants. When you contact the teaching assistants, please follow the specific guidance set forth later.

Tutorials

There will be eight tutorial sessions led by teaching assistants during the semester. The schedule of these tutorial sessions will be made available separately on the class Blackboard site. Each tutorial session will consist of in-class exercises and Q&As.

There will be several different timeslots and you need to sign up for one of them. A sign-up sheet for tutorial sessions will be posted on the class Blackboard site.

Your participation in each of the eight tutorial sessions will count toward 1% of your final mark. If you cannot attend any one of the tutorial timeslots for a legitimate reason, please send an email to the instructor no later than Monday, September 28, to make an alternative arrangement for the tutorial participation marks. Official documentation, which verifies the specific reason given, may be required.

If you miss a tutorial session for a legitimate reason, the participation in that tutorial session may be waived as long as you provide official documentation, such as the UofT Medical Certificate, which verifies the specific reason given. The tutorial participation mark (8% of the final mark) will then be determined by your participation in the rest of the tutorial sessions with each session readjusted to weigh equally.

Outside Class Communication Policy

The large size of this class makes it necessary to maintain the following policy with respect to outside-class communication with the instructor and teaching assistants. Please follow the policy specified below when you contact the instructor or teaching assistants outside class.

1. Office Hours
- You are welcome to visit during the instructor's office hours, which will be held during the time and date specified at the beginning of the syllabus, if you have any

questions on the class materials.

- There will also be office hours held by teaching assistants. Specific schedules of the teaching assistants' office hours will be posted on the class Blackboard site.

2. Discussion Board

- We will also use the Discussion Board on the class Blackboard site as the main medium through which you can ask relatively simple 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 also 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.
- Teaching assistants or the instructor will regularly check the Discussion Board (once on Mondays, Wednesdays, and Fridays) and answer questions which have not been adequately addressed by peers.
- While relatively simple questions may be posted on the class Discussion Board, you are best advised to visit the office hours or tutorial sessions for complex questions or those that would require an extensive treatment.

3. Email Communications

- If you have any questions of personal nature (e.g., accessibility, deadline extension for legitimate reasons), you may email the instructor and expect a response within two working days. Please start the subject heading of your email with "POL322:..."
- I will not answer, however, any questions over email that are of substantive nature concerning the class materials. You will need to post those questions on the Discussion Board or visit office hours or tutorial sessions to get them answered.

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 visit office hours of the instructor or teaching assistants. However, if you have a schedule conflict with all available office hours, you may send a teaching assistant an email to ask for a feedback on your individual-specific question. (This is the only exception to the email communications policy described above.) Please consider visiting office hours of the instructor or teaching assistants first, as the feedback of this kind may be best communicated in person. You should consider seeking advice via emails only when your schedule does not allow visiting the available office hours.
- Please note that neither the instructor nor teaching assistants will be able to review your draft essay when you seek advice.

5. Non-response

- As stated above, the instructor will not respond to questions of substantive nature over emails. Please make sure that you follow the policy set up above to post these

questions on the Discussion Board.
- Please note that the teaching assistants and the instructor 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 instructor an email to let him know they have not been addressed. Please include "POL322: Unanswered Question" in the subject heading of your email.

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 or (416) 978-8060 as soon as possible.

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 http://www.artsci.utoronto.ca/osai/students, which is the rule book for academic behaviour at the U of T. Potential offenses include, but are not limited to, plagiarism, cheating on tests and exams, fraudulent medical documentation and improper collaboration on marked work.

For specific examples of the potential academic offences, please read *What is Academic Misconduct* (http://www.artsci.utoronto.ca/osai/The-rules/what-is-academic-misconduct) at the Office of Student Academic Integrity's website. Please note that, as stated in this site, "(n)ot knowing the University's expectations is not an excuse." Under the Code, "the offense shall likewise be deemed to have been committed if the person ought reasonably to have known." (*Code of Behaviour on Academic Matters*, web version, p.2)

For further clarification and information on plagiarism, please see *Writing at the University of Toronto* (http://www.writing.utoronto.ca/advice/using-sources/).

The University of Toronto treats cases of academic misconduct very seriously. All suspected cases of academic dishonesty will be investigated 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. If you have any questions about what is or is not permitted in this course, do not hesitate to contact the instructor.

Class Schedule

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. If these are to happen, you will be given an advance notice during lectures.

This class is divided into three parts, each of which corresponds to each course objective outlined at the beginning of the syllabus.

PART I.   SCIENTIFIC STUDY OF POLITICS AND CAUSAL THEORY
Basics of Quantitative Empirical Political Science Research

Week 1 (Sep. 14): Introduction: What Will We Learn and Why?
- ➢ Steve Lohr, "For Today's Graduate, Just One Word: Statistics," *New York Times* (August 6, 2009): A1.

Week 2 (Sep. 21): How Do We Study Politics Scientifically?
- ➢ Kellstedt and Whitten, Chapters 1-2.

Week 3 (Sep. 28): How Do We Evaluate Causal Relationship?
- ➢ Kellstedt and Whitten, Chapter 3.
- ❖ Problem Set 1 --- Posted: Sep. 28 (Mon.), Due: Oct. 2 (Fri.)
- ❖ Essay 1 Posted
- ❖ Tutorial Session 1: Causal Relationship

PART II.   EMPIRICAL RESEARCH DESIGN
How Do We Test Our Theory?

Week 4 (Oct. 5): Experiments, Part 1: Laboratory Experiments and Field Experiments
- ➢ Kellstedt and Whitten, Chapter 4.1-4.2.
- ➢ The following readings are assigned to illustrate the variety of experiments introduced in the lecture. Skip the technical details but focus on the big picture of how the authors designed their empirical research to answer the causal question of their interest.
  - o Joel Turner. 2007. "The Messenger Overwhelming the Message: Ideological Cues and Perceptions of Bias in Television News." *Political Behavior* 29: 441-464.
  - o Leonard Wantchekon. 2003. "Clientelism and Voting Behavior: Evidence from a Field Experiment in Benin." *World Politics* 55: 399- 422.
- ❖ Tutorial Session 2: Peer Discussion on Essay 1

Thanksgiving Holiday (Oct. 12): No Class

Week 5 (Oct. 19): Experiments, Part 2: Survey Experiments and Review
- ➢ Kellstedt and Whitten, Chapter 4.1-4.2. (Reread)
- ➢ The following readings are assigned to illustrate the variety of experiments

introduced in the lecture. Skip the technical details but focus on the big picture of how the authors designed their empirical research to answer the causal question of their interest.

- o Michael C. Horowitz and Matthew S. Levendusky. 2011. "Drafting Support for War: Conscription and Mass Support for Warfare." *Journal of Politics* 73 (2): 524-534.
- o Ezequiel Gonzales Ocantos, Chad Kiewiet de Jonge, and David W. Nickerson. 2011. "Vote Buying and Social Desirability Bias: Experimental Evidence from Nicaragua." *American Journal of Political Science* 56(1).

❖ Essay 1 Due
❖ Essay 2 Posted
❖ Tutorial Session 3: Experiments

Week 6 (Oct. 26): Observational Studies
➢ Kellstedt and Whitten, Chapters 4.3-4.4.
➢ The following readings are assigned to illustrate the variety of observational studies introduced in the lecture. Skip the technical details but focus on the big picture of how the authors designed their empirical research to answer the causal question of their interest.
- o James H. Fowler. 2008. "The Colbert Bump in Campaign Donations: More Truthful then Truthy." *PS: Political Science and Politics*.
- o Andrew Gelman and Gary King. 1990. "Estimating Incumbency Advantage without Bias." *American Journal of Political Science* 34 (4) — Introduction and Sections 1, 5 (pp.1150-1152 only), 6 and 8 only.
- o Menaldo, Victor. "The Middle East and North Africa's Resilient Monarchs." *Journal of Politics* 74 (3).

❖ Problem Set 2 --- Posted: Oct. 26 (Mon.), Due: Oct. 30 (Fri.)
❖ Tutorial Session 4: Observational Studies

PART III.   DESCRIPTIVE STATISTICS AND VISUALIZATION
How Do We Make Sense of Our Data?

Week 7 (Nov. 2): How Can We Describe Our Variable of Interest? Univariate Distribution
➢ Kellstedt and Whitten, Chapter 5.8-5.11.
❖ Tutorial Session 5: Peer Discussion on Essay 2

November Break (Nov. 9): No Class
❖ Nov. 9 (Mon.): Essay 2 Due

Week 8 (Nov. 16): How Can We Describe the Relationship between Two Variables? Simple Linear Regression
➢ Kellstedt and Whitten, Chapter 8.1-8.3.
❖ Essay 3 Posted
❖ Tutorial Session 6: Histograms, Boxplots, Simple Linear Regression

Week 9 (Nov. 23): How Can We Describe the Relationship between Three or More Variables? Multiple Linear Regression
- ➢ Kellstedt and Whitten, Chapters 9.1-9.4.
- ➢ Alan Abramowitz. 2008. "Forecasting the 2008 Presidential Election with the Time-for- Change Model." *PS: Political Science and Politics* 41: 691-695.
- ❖ Tutorial Session 7: Multiple Linear Regression

Week 10 (Nov. 30): How to Interpret Linear Regression Results
- ➢ Readings TBA
- ❖ Problem Set 3 --- Posted: Nov. 30 (Mon.), Due: Dec. 4 (Fri.)
- ❖ Tutorial Session 8: Peer Discussion on Essay 3

Week 11 (Dec. 7): Wrap-Up
- ➢ Readings TBA
- ❖ Essay 3 Due

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.