

POL322H1F: Introduction to Quantitative Reasoning
University of Toronto
Fall 2014

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:	Wednesday, 10:00am-12:00pm

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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. This course introduces important foundations of these quantitative empirical studies.

By the end of the semester, you are expected to have a basic understanding of:

1. Representative empirical research strategies to investigate the causal relationship of political phenomena of interest (a.k.a. *research design*), and various threats to the validity of different research designs;
2. How to use *descriptive statistics* and *visualization* tools to summarize and interpret the nature of a political/economic/social phenomenon or characteristic of interest and the relationship between two or more of them;
3. How to make a *statistical inference* to learn about the characteristics and relationships in a large population or a general social process which generates the events of our interest from sample observations, especially in the context of a linear regression analysis — arguably the most basic method used in quantitative social science research.

With these knowledge, students will be better prepared to be educated readers and active participants of social science research and public policy debates. The class is divided into three parts, each of which corresponds to each course objective outlined above.

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). 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. It is advisable to print out the lecture slides and bring them to the class. Note that sometimes a few slides, such as graphics and visual effects, may be deliberately taken out from the set made available on the class 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 and tutorials. 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: 80%

Essay 1	Posted:	Sep.15 (Mon.)	Due:	Oct. 6 (Mon.)	20%
Essay 2	Posted:	Oct. 20 (Mon.)	Due:	Nov. 10 (Mon.)	25%
Essay 3	Posted:	Nov. 10 (Mon.)	Due:	Dec. 1 (Mon.)	35%

- Four Online Problem Sets: 20%

Problem Set 1	Posted:	Sep. 29 (Mon.)	Due:	Oct. 3 (Fri.)	5%
Problem Set 2	Posted:	Oct. 20 (Mon.)	Due:	Oct. 24 (Fri.)	5%
Problem Set 3	Posted:	Nov. 3 (Mon.)	Due:	Nov. 7 (Fri.)	5%
Problem Set 4	Posted:	Nov. 24 (Mon.)	Due:	Nov. 28 (Fri.)	5%

The four 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 also has questions which are cumulative. By completing these problem sets, you are expected to progressively build knowledge on quantitative empirical methodology in political science.

In your 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.

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 20-percentage-points reduction per day (e.g., from 90% 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 more than five calendar days late will receive a zero grade.
- 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.

Extension

Extension may be made only when there is a legitimate reason, such as an unforeseeable medical emergency an accessibility issue, and there is an acceptable official documentation,

such as the UofT Medical Certificate, the College Registrar's Letter, and the Accessibility Services Letter. Students who know in advance they will need 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.

Conflict with work schedule, leaving for a non-academic trip, or vacation is not an acceptable excuse to miss the assignments. I suggest you consult the course schedule in advance and drop the course if you cannot be present for the lectures and assignments.

Grade Appeals

Grade appeals must be received within one month 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.

Teaching Assistants

There will be two teaching assistants for this course, whose main duties are grading assignments and student contact regarding the assignments, including occasional tutorial sessions and office hours. When you contact the teaching assistants, please follow the specific guidance set forth later.

Tutorials

There will be tutorial sessions held by teaching assistants in four weeks during the semester. These four weeks are listed in the Class Schedule below. Each tutorial session will consist of in-class exercises and Q&As focused on the essay/problem set assigned around then. The attendance is voluntary, but it is highly recommended that you attend these tutorial sessions, as they are invaluable opportunities to ask questions in a relatively small class size. For each of the four tutorial weeks, a specific schedule will be posted on the class Blackboard site and you will be given an opportunity to sign up for one section to attend.

Outside Class Communication Policy

The large size of this class makes it necessary for me 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.
- In the past, there were several occasions on which there was a long waiting line of students to see the instructor during office hours and some students had to leave before they saw the instructor as time had run out. To avoid such a disappointing event, I will maintain a sign-up sheet for my office hours online. Please sign up for a 10-minute block on this sign-up sheet. More details about the sign-up sheet will be

- posted on the class Blackboard site.
- There will also be office hours held by teaching assistants later in the course. The weeks when teaching assistants will hold office hours can be found in the Class Schedule below. Specific schedules of the teaching assistants' office hours will be announced later on the class Blackboard site. There will be an online sign-up sheet for teaching assistants' office hours, too, to avoid a long waiting line.

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, I 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 I 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 me an email to let me 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 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.

Week 1 (Sep. 8): Introduction: What Will We Learn and Why?

- Steve Lohr, “For Today’s Graduate, Just One Word: Statistics,” *New York Times*

(August 6, 2009): A1.

PART I. CAUSAL THEORY AND RESEARCH DESIGN
Basics of Quantitative Empirical Political Science Methodology

Week 2 (Sep. 15): How Do We Study Politics Scientifically? Scientific Study of Politics and the Evaluation of Causal Relationship

- Kellstedt and Whitten, Chapters 1 & 3.
- ❖ **Essay Assignment 1 Posted**

Week 3 (Sep. 22): How Do We Test Our Theory? Empirical Research Design I: Experiments

- Kellstedt and Whitten, Chapter 4.1-4.2.
- ❖ **Tutorial 1 in this week.**

Week 4 (Sep. 29): How Do We Test Our Theory? Empirical Research Design II: Observational Studies

- Kellstedt and Whitten, Chapters 4.3-4.4, 5.1-5.6, 5.12.
- ❖ **Problem Set 1 Posted (Due: Oct. 3)**
- ❖ **TA office hours in this week.**

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

Week 5 (Oct. 6): How Can We Describe Our Variable of Interest? Univariate Distribution

- Kellstedt and Whitten, Chapter 5.8-5.11.
- ❖ **Essay Assignment 1 Due**

Oct. 13: Thanksgiving Holiday

Week 6 (Oct. 20): How Can We Describe the Relationship between Two Variables? Bivariate Linear Regression

- Kellstedt and Whitten, Chapter 8.1-8.3.
- ❖ **Problem Set 2 Posted (Due: Oct. 24)**
- ❖ **Essay Assignment 2 Posted**

Week 7 (Oct. 27): How Can We Describe the Relationship between Three or More Variables? Multivariate Linear Regression

- Kellstedt and Whitten, Chapters 9.1-9.4, 10.2.1, and 10.3.
- ❖ **Tutorial 2 in this week.**

PART III. STATISTICAL INFERENCE AND LINEAR REGRESSION
How Do We Examine Our Causal Theory with Empirical Data?

Week 8 (Nov. 3): How Do We Learn about the Population from a Sample? Sampling Distribution and Point Estimation

- Kellstedt and Whitten, Chapter 6.
- ❖ Problem Set 3 Posted (Due: Nov. 7)
- ❖ Tutorial 3 in this week.
- ❖ TA office hours in this week.

Week 9 (Nov. 10): How Do We Interpret Linear Regression Results? Statistical and Substantive Significance

- Kellstedt and Whitten, Chapters 8.4.6, 8.5, 9.6, 9.8-9.9.
- ❖ Essay Assignment 2 Due
- ❖ Essay Assignment 3 Posted

Nov. 17: November Break

- ❖ TA office hours in this week.

Week 10 (Nov. 24): How Much Are We Confident in Our Inference?: Interval Estimation

- Kellstedt and Whitten, Chapter 8.4.5, 8.4.7.
- Problem Set 4 Posted (Due: Nov. 28)
- Tutorial 4 in this week.
- TA office hours in this week.

Week 11 (Dec. 1): Wrap-Up

- Readings TBA.
- ❖ Essay Assignment 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.