POL232H1S: Introduction to Quantitative Reasoning II
L0101 & L5101
University of Toronto
Winter 2018

Meeting Room:	SS 561
Lecture Time:	L0101: Monday, 2:00-4:00pm
	L5101: Thursday, 6:00-8:00pm
Tutorial Time:	L0101: Monday, 1:00-2:00pm or 4:00-5:00pm
	L5101: Thursday, 5:00-6:00pm or 8:00-9:00pm

Instructor:	Kenichi Ariga	
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Office Hours:	Monday, 10:00am-12:00pm	
Teaching Assistants:	L0101: Matt Wilder	matt.wilder@mail.utoronto.ca
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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.

For political science students, two consecutive introductory courses on quantitative empirical methodology are offered (POL222 & 232). This course, "POL232 Introduction to Quantitative Reasoning II," is the second course and continues to introduce important foundations of quantitative empirical methodology.

Students taking this course will learn:

1. Theoretical foundations of *statistical inference* to learn about the characteristics and relationships in a large population from sample observations;

2. *Linear regression* analysis, which is one of the most basic methods to empirically investigate the relationship between political, economic, social and policy phenomena; and

3. Elementary use of statistical software to conduct simple quantitative analyses of social science data.

The objective of the class is to better prepare the students to become educated readers and active participants in social science research and public policy debates.

Required Textbooks

> Paul M. Kellstedt and Guy D. Whitten, *The Fundamentals of Political Science Research*, *Second Edition* (Cambridge University Press, 2013).
>
> Phil H. Pollock III and Barry C. Edwards, *An R Companion to Political Analysis*, 2nd Edition (CQ Press, 2017).

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

Computer Software

Quantitative social science research requires the use of computer and computer software. In this class, you will learn an elementary use of a software package called R, which is free to download at http://www.r-project.org and is getting popular among many social scientists.

Class Structure

This class is designed with a mutually learning community in mind and two-hour weekly lectures should be only part of your entire learning experience. Every student is expected to take initiative in his or her own learning. All class requirements are designed to facilitate and help his/her initiative. Students are expected to ask questions proactively during the instructor's lectures and the teaching assistants' tutorial sessions and are encouraged to discuss the class materials with peers outside the classroom.

Blackboard / Learning Portal

The class Blackboard site (https://portal.utoronto.ca) will be the primary means through which class announcements and assignments will be distributed. Readings other than the above textbooks, lecture slides, and assignments will be made available in the class Blackboard site. Its Discussion Board will be the primary method by which you will ask simple 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

Lecture slides will be made available on the class Blackboard site after each lecture to help you review the contents of the lectures. Note that some slides, such as graphics and visual effects, may be 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 problems/exercises during lectures. They are intended to be used only in the lectures and will not be posted on the Blackboard.

Teaching Assistants

There is a teaching assistant for each lecture section (Matt Wilder for L0101 and Mujahed Islam for L5101), whose main duties are leading tutorial sessions, grading assignments and other student contacts. There will also be office hours held by the teaching assistants. When you contact the teaching assistants, please follow the specific guidance set forth later.

Tutorials

Tutorials are scheduled before and after each week's lecture. Matt Wilder will lead the tutorial sessions for L0101, which meet at SS561 between 1:00-2:00pm or 4:00-5:00pm on Mondays. Mujahed Islam will lead the tutorial sessions for L5101, which meet at SS561 between 5:00-6:00pm or 8:00-9:00pm on Thursdays. Normally, weekly homework assignments are due at the beginning of the tutorial sessions.

A sign-up sheet for tutorial time slots for each lecture section will be made available on the class Blackboard site. You need to sign up for a tutorial time slot at the beginning of the semester.

The first tutorial meeting will be Thursday, Jan. 18th for L5101 and Monday, Jan. 22nd for L0101.

If you cannot attend any one of the tutorial time slots for a legitimate reason, you need to send an email to your teaching assistant (Matt Wilder for L0101 and Mujahed Islam for L5101) to make an alternative arrangement for the tutorial participation marks and the submission of homework assignments at the beginning of the semester. Official documentation, which verifies the specific reason given, will be required. Unless you make an alternative arrangement, you will lose participation mark for homework assignments and tutorial sessions.

Note that a teaching assistant for your lecture section will be a grader of your empirical research paper assignments.

Grading and Evaluation

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

1. Empirical Research Paper Assignments: 55%
   a. Midterm Paper: 25% (Due: Friday, Feb. 16th)
   b. Final Paper: 30% (Due: Wednesday, Apr. 4th)

   By the end of the semester, you will write an empirical research paper based on a linear regression analysis using R and a dataset provided in class, which addresses the causal theory of your interest.

   As you gradually develop your empirical research project throughout the semester, you will be required to submit an intermediate product of your research in the middle of the semester ("Midterm Paper") and a full-length research paper at the end

of the semester ("Final Paper").

2. Final Exam: 30%

   There will be a closed-book, closed-note final exam. The exam will take place during the final examination period in April administered by the Faculty of Arts and Science. Its date and place will be determined and announced by the Faculty.

3. Class Participation: 15%

   Your class participation marks will be determined by the following four items:

   a. iClicker Participation during Class Lectures: 5%

      Your iClicker participation during the lectures will count toward 5% of your final mark. I plan to include iClicker opportunities in ten lectures from Week 2 until Week 11. Your final mark on iClicker participation will be based on your participation in iClicker opportunities in eight out of ten lectures, with each lecture weighted equally. The total number of lectures with iClicker opportunities may change due to the actual progress of the class. If this happens, the number of lectures that will be the basis of your iClicker participation mark will be the new total number of lectures with iClicker opportunities minus two.

      It is your responsibility to bring your iClicker to each lecture. As this is the participation mark in iClicker opportunities, simply attending the lecture will not count toward your iClicker participation mark. If you forget an iClicker, you will not earn an iClicker participation mark in that lecture. As you are expected to attend all lectures and participate in all iClicker opportunities and you may forget an iClicker only rarely (presumably in less than two lectures), failure to bring an iClicker with you will not be considered to waive or make up your iClicker participation mark.

      There may be rare occasions in which your iClicker did not function during the lecture or your iClicker response was not recorded for some technical reasons. The number of lectures that is the basis of your iClicker participation mark is set to be the total number of lectures with iClicker opportunities minus two in order to accommodate missing a participation mark due to such rare troubles. As you are expected to attend all lectures and participate in all iClicker opportunities and these technical problems are expected to happen only rarely (presumably in less than two lectures), these rare troubles will not be considered to waive or make up your iClicker participation mark.

   b. Tutorial Participation: 5%

      There will be ten weekly tutorial sessions from Week 3 until Week 12. Your tutorial participation mark (5% of your final mark) will be determined by your participation in eight out of the ten tutorial sessions, with each tutorial session weighted equally.

      The total number of tutorial sessions may change due to the actual progress of

the class. If this happens, the number of tutorial sessions that will be the basis of your tutorial participation mark will be the new total number of tutorial sessions minus two.

c. Weekly Homework Assignments: 4%

Completing weekly homework assignments is considered as participation in class as the number of correct answers will not be counted but the extent to which you gave effort to complete the assignments will be evaluated. Accordingly, all homework assignments will be graded on a pass/fail basis. If it is determined that you gave it a reasonable effort to answer all the questions, you will be given full credit for that homework, regardless of the number of correct answers. If you do not show a reasonable amount of effort, however, your homework will be given a fail or a marginal pass. You will receive no credit in the former case and will receive half the credit in the latter.

There will be ten homework assignments. Your final mark on homework assignments (4% of the total mark) will be determined by your completion of eight out of the ten homework assignments by their due, with each homework assignment weighted equally. The total number of homework assignments may change due to the actual progress of the course. If this happens, the number of homework assignments that will be the basis of your final mark will be the new total number of homework assignments minus two.

Completing all homework assignments is essential to understanding the class materials, completing the empirical research paper assignments appropriately, and performing well in the final exam.

d. Feedback Survey: 1%

There will be an anonymous online feedback survey on the class through the Blackboard at the end of the semester. Your participation in the survey will count toward 1% of your final mark.

Group Work and Collaboration

Group work and collaboration is allowed for some assignments in this class, as specified below. Given somewhat technical nature of the class materials, it is essential to have an opportunity to discuss with your classmates the concepts and methods you learn in class and how to apply them. Everyone has different strengths and weaknesses in their understanding of materials and learning style. Through working together, you may facilitate learning for each other and deepen your understanding of the materials, which may be difficult if you worked alone.

If you choose to collaborate with your classmate on these assignments, you should make sure that you learn and build your own individual knowledge on the concepts and methods covered in the class from the group work. There will be a closed-book final exam at the end of the semester, which assesses your individual knowledge and application of the concepts and methods learned in the class.

Empirical Research Paper Assignments

The submission by a team of two individuals is allowed for the empirical research paper assignments. Collaboration in a team of multiple scholars is not unusual for contemporary social science research in general, and quantitative empirical political science research in particular. As an introductory course on the methods of such research, this class will provide you with an opportunity to practice scholarly collaboration by allowing the group submission of the assignments.

At most two students may participate in one group. If you submit your assignment as a group, everyone in the group will receive the same mark for that assignment. Given the nature of the class organization, if you want to submit your empirical research paper assignments with your peer, you should do so with another student in the same lecture section. For example, if you are in the L0101 lecture section, you have to collaborate with another student in L0101.

You may submit both a midterm paper and a final paper in a group, or submit one of them in a group but submit the other individually. You may also change your group across midterm and final papers.

Note that a group submission is voluntary. There will be neither credit nor penalty for submitting your empirical research paper assignments in a group or individually. Neither the instructor nor the teaching assistants can help you organize your group or resolve any conflicts related to the group work. Conflicts or difficulties in coordinating the group work will not be considered as an acceptable reason to request an extension or a waiver of late penalty. It is your responsibility to coordinate all group work appropriately and submit your empirical research paper assignments in time.

Homework Assignments

For weekly homework assignments, you are also allowed to work with your classmates, but your submission of homework assignments must be individual. That is, you can discuss the homework problems with your classmates, but you have to prepare your own answer to each homework problem.

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. They will need to let the teaching assistant in charge of grading your empirical research paper assignment 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 papers 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 and Extension

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

- Empirical Research Paper Assignments

  Extension for the empirical research paper 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.

  Empirical research paper assignments handed in late will result in a penalty of 2-percentage-point reduction per day (e.g., from 72% to 70%). Submitting the assignments 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.

  Since the Turnitin is used to submit the empirical research paper assignments, your submission must be accepted by Turnitin before the due date and time. Note that the date and time recorded in Turnitin will be your submission date and time. If this is after the deadline even only by one minute, then your submission will be considered late. In other words, completing your paper and start uploading it to Turnitin before the due date and time is not enough. Your submission to Turnitin must be complete before the due date and time.

  Also note that your submission is incomplete unless you receive a Turnitin submission ID. It is your responsibility to make sure that you received a submission ID before the due date and time.

  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 extension or waiver of a late penalty. Also sending your assignment to the instructor and/or the teaching assistants via email will not be considered as a submission. For these reasons, I strongly suggest you avoid a last-minute completion or submission of assignments. I also suggest you frequently take a backup of the electronic files of your draft essay/paper in an electronic storage other than your

computer.[1]

- Weekly Homework Assignments

  Weekly homework assignments not completed by their respective due will receive a zero grade as they are considered as participation marks.

  Since your participation mark on these homework assignments is based on your completion of eight out of ten homework assignments, missing up to two homework assignments will not affect your final mark.

  If you cannot complete three or more homework assignments by their due for a legitimate reason, the homework assignment in question will be waived rather than being given an extension, and your participation mark for the homework assignments will be determined by the rest of the assignments minus two with each readjusted to weigh equally. 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 for this waiver.

  The request of a waiver for the homework assignments must be made to the teaching assistant for your lecture section (Matt Wilder for L0201 or Mujahed Islam for L5101).

- Tutorial Participation

  Since your tutorial participation mark is based on your participation in eight out of ten tutorial sessions, missing up to two tutorial sessions will not affect your final mark. If you will have to miss three 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. The tutorial participation mark will then be determined by your participation in the rest of the tutorial sessions minus two with each session weighed equally.

  The request of a waiver for a tutorial participation must be made to the teaching assistant for your lecture section (Matt Wilder for L0201 or Mujahed Islam for L5101).

- iClicker Participation

  Since your iClicker participation mark is based on your participation in eight out of ten lectures with iClicker opportunities, missing up to two lectures with iClicker opportunities will not affect your final mark. As stated in Grading and Evaluation (p.4), however, failure to bring iClicker with you and occasional technical problems will not be considered to waive or make up your iClicker participation mark, since the number of

[1] For example, you may use a free cloud storage space, such as DropBox, Google Drive, and iClouds. Or you may send your draft to your UofT email address so that your draft file will be stored in your mailbox of the UofT server.

lectures with iClicker opportunities that will be the basis of the iClicker participation mark is set to be less than the total number of lectures with iClicker opportunities in order to accommodate missing a mark for such problems.

If you will have to miss three or more lectures with iClicker opportunities for a legitimate reason, your iClicker participation in these lecturers 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. Your iClicker participation mark will then be determined by your participation in the rest of the lectures with iClicker opportunities minus two with each session weighed equally.

The request of a waiver for iClicker participation must also be made to the teaching assistant for your lecture section (Matt Wilder for L0201 or Mujahed Islam for L5101).

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 a grader, who is normally a teaching assistant for your lecture section (Matt Wilder for L0101 and Mujahed Islam for L5101). 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 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.

Outside Class Communication Policy

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 before the empirical research paper assignments' due dates. 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, 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 and the instructor will regularly check the Discussion Board and answer questions, which have not been adequately addressed by peers.
- Discussion Board questions will be normally addressed within 24 hours except on weekends by one of the teaching assistants in charge of answering Discussion Board questions on that day.
- 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., deadline extension for a legitimate reason), you may email the teaching assistants or the instructor and expect a response within two working days. Please start the subject heading of your email with "POL232:..."
- If your questions are of substantive nature (including the questions about statistical software, R), please post these questions on the Discussion Board or visit office hours or tutorial sessions to get them answered.
- If you send teaching assistants or the instructor a question of substantive nature, you will receive a reply to ask you to post your question on the Discussion Board. 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.

4. Empirical Research Paper Assignments

- You may post general questions on the empirical research paper assignments on the class Discussion Board. If you have a question specific to your research 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 an email to the teaching assistant who is your grader to ask questions on your research ideas. 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 from the teaching assistant for your lecture section 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 paper 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.
- Please also note that the instructor and teaching assistants may not be able to answer last minute questions on the assignments on their due date.
- 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 or a teaching assistant an email to let him/her know they have not been addressed. Please include "POL232: 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, accessibility.services@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 information on plagiarism, visit the pages available from the links listed at 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/). You may also find other resources available on this website helpful.

The University of Toronto treats cases of academic misconduct very 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. If you have any questions about what is or is not permitted in this course, do not hesitate to contact the instructor or teaching assistants.

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 these are to happen, you will be given an advance notice at the class Blackboard site.

Readings listed for each class are required unless explicitly stated that they are recommended.

Note that you need to bring Pollock and Edwards with you to a lecture when there is a computer laboratory session during the lecture.

Week 1: L0101 Jan. 4 (Thr.) & L0101 Jan. 8 (Mon.)
Lecture 1. Introduction

PART I. DESCRIPTIVE STATISTICS: ANALYSIS OF SAMPLE DATA
How Can We Describe a Variable or the Relationship between Variables?

Week 2: L5101 Jan. 11 (Thr.) or L0101 Jan. 15 (Mon.)
Lecture 2. Descriptive Statistics for Single Variable (1)
- Kellstedt and Whitten, Chapter 5.1, 5.7-5.9

Computer Laboratory Session 1. Intro to R
- Pollock and Edwards, Introduction, and Chapter 1

Week 3: L5101 Jan. 18 (Thr.) or L0101 Jan. 22 (Mon.)
Lecture 3. Descriptive Statistics for Single Variable (2)
- Kellstedt and Whitten, Chapter 5.10-5.12

Computer Laboratory Session 2. Descriptive Statistics for Single Variable in R
- Pollock and Edwards, Chapter 2

Tutorial 1: Homework 1 Due

Week 4: L5101 Jan. 25 (Thr.) or L0101 Jan. 29 (Mon.)
Lecture 4. Descriptive Statistics for Bivariate Analysis (1)
Computer Laboratory Session 3. Examining the Relationship between Two Variables
- Pollock and Edwards, Chapter 4. (This is a required reading for both Lecture 4 and Lab Session 3.)

Tutorial 2: Homework 2 Due

Week 5: L5101 Feb. 1 (Thr.) or L0101 Feb. 5 (Mon.)
Lecture 5. Descriptive Statistics for Bivariate Analysis (2): Simple Linear Regression
- Kellstedt and Whitten, Chapter 7.4.3 (skip t-statistic & p-value), 8.1-8.2 (skip the discussion on population), 11.1-11.2.1.

Computer Laboratory Session 4. i) Transforming Variables, and ii) Correlation and Linear Regression
- Pollock and Edwards, Chapter 3, 8 (pp.117-121 only; skip R-squared, standard errors, t-statistic & p-value) and 9 (pp.139-144 [until the first paragraph] and p.157 [the second paragraph and after] only).

Tutorial 3: Homework 3 Due

Week 6: L5101 Feb. 8 (Thr.) or L0101 Feb. 12 (Mon.)
Lecture 6: Descriptive Statistics for Multivariate Analysis

- Kellstedt and Whitten, Chapter 8.3, 9.1-9.4 (skip the discussion on population), and 9.9.
- Alan I. Abramowitz. 2008. "Forecasting the 2008 Presidential Election with the Time-for-Change Model." *PS: Political Science & Politics* 41(4).

Tutorial 4: Homework 4 Due

Midterm Paper Due: Feb. 16 (Fri.), 11:59pm

PART II. STATISTICAL INFERENCE FOR SINGLE VARIABLE
How Can We Learn about Population from Sample?

Week 7: L5101 Feb. 15 (Thr.) or L0101 Feb. 26 (Mon.) [2]
Lecture 7: Probability and Sampling Distribution

- Kellstedt and Whitten, Chapter 6.1-6.3
- "Trudeau and Liberals Dip Slightly in Latest Poll," September 14, 2016, thestar.com (https://www.thestar.com/news/canada/2016/09/14/trudeau-and-liberals-dip-slightly-in-latest-poll.html).

Tutorial 5: Homework 5 Due

Week 8: L5101 Mar. 1 (Thr.) or L0101 Mar. 5 (Mon.)
Lecture 8: Point Estimation and Interval Estimation

- Kellstedt and Whitten, Chapter 6.3-6.5
- Thomas H. Wonnacott and Ronald J. Wonnacott. 1990. *Introductory Statistics, 5th Edition*. Chapter 8-1 and 8-5 (skip 8.1-E, 8.5-B, and 8.5-C).

Tutorial 6: Homework 6 Due

PART III. STATISTICAL INFERENCE FOR LINEAR REGRESSION

Week 9: L5101 Mar. 8 (Thr.) or L0101 Mar. 12 (Mon.)
Lecture 9: Statistical Inference for Linear Regression

- Kellstedt and Whitten, Chapter 8.1-8.2 (reread), 9.1-9.2 (reread), 8.4's introductory paragraph (pp.178-179).

(Topics in Chapter 8.5 are also covered in the lecture, but my presentation will be simpler and slightly different. Hence, Chapter 8.5 is not required.)

Tutorial 7: Homework 7 Due

Week 10: L5101 Mar. 15 (Thr.) or L0101 Mar. 19 (Mon.)
Lecture 10: Is Our Finding *Significant*? (1): Confidence Interval for Linear Regression and Statistical Significance

- Kellstedt and Whitten, Chapter 8.4.4 - 8.4.5.

[2] There will be no class on Feb. 19 (Mon.) and 22 (Thr.) as it will be the Reading Week.

(Topics in Chapter 8.4.6 - 8.4.7 are also covered in the lecture, but my presentation will be simpler and slightly different. Hence, Chapter 8.4.6 - 8.4.7 are not required.)

Tutorial 8: Homework 8 Due

Week 11: L5101 Mar. 22 (Thr.) or L0101 Mar. 26 (Mon.)
Lecture 11: Is Our Finding *Significant*? (2): Substantive Significance and A Few More Topics on Linear Regression

- Kellstedt and Whitten, Chapter 9.5 - 9.6.

Tutorial 9: Homework 9 Due

Week 12: L5101 Mar. 29 (Thr.) or L0101 Apr. 2 (Mon.)
Computer Laboratory Session 5: Final Paper Assignment
Tutorial 10: Homework 10 Due

Final Paper Due: Apr. 4 (Wed.), 11:59pm

Final Exam: Date and time determined by the Faculty of Arts and Science

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.