

POLSCI 4419/9715: Intro to Methodology Fall, 2017

Instructor:

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Office Hours: 11:00AM-12:00PM Wednesdays (or by appointment)

1 Overview and Course Objectives

This course is meant to get students thinking about how data *are* used to make social, political and economic decisions and how we *could* answer questions we care about with data. The time when political scientists could happily exist in a (quantitative) data-free world has long since passed. We live in a world where many decisions are made using data. This has a number of interesting implications.

1. It is incumbent on those of us who wish to be savvy consumers to understand how data are being used to make decisions, what our “data footprint” is and how to discriminate good from bad uses of data.
2. We have to have some basic understanding of research design and probability to evaluate advances in health, medicine, politics, economics, etc... When looking at media reports of studies, how can we figure out whether the study was done well or poorly? Does the study generalize? What actionable intelligence really exists?
3. As political scientists, we answer questions about policy effectiveness, the efficacy of citizen interactions with government, etc... with data. But, we need to know and understand how.

Throughout the course, you will be asked to engage, and in some cases produce, quantitative work.

One of the interesting aspects of how stats courses (particularly those in the social sciences) have evolved is that they often continue to be perceived as “math classes.” One of my goals here is to (mostly) disabuse you of this notion. This is largely not a math class. That is to say, we will be *doing* (in terms of paper and pencil) very little math. We will be *looking at* mathematical notation from time to time. We use mathematical notation because it is precise - with terms and operators defined, we could all look at a statistical function and understand its main components and how they fit together.

Similarly, mathematical notation is concise - it allows us to represent some quite abstract and complicated ideas in relatively little space.

Instead of thinking about this as a math class, this is a class that part psychology, part story-telling, part computer programming (don't worry about this part), part visual design and part data analysis (obviously). Statistics in the social sciences are often (as in this course) focused on applications rather than complicated mathematical derivations.

2 Course Text(s)

The required text for the course is:

Hahn, Michael and Jenny Godley (2017) An Introduction to Statistics for Canadian Social Scientists. 3rd ed. Oxford University Press.

Other readings will be made available electronically through the course's OWL site.

3 Requirements

The course has a number of requirements, including attendance, reading, quizzes, and written work of different sorts. Here is a breakdown of the different elements:

Attendance 10%

Your attendance at class is mandatory. The material we cover is cumulative and missing one course could be quite detrimental to future understanding. If you do miss a course, then you are responsible for learning the material. I will of course answer whatever questions you have after you've done the relevant readings. There are 12 day of class and I will permit 1 unexcused absence. Thus attendance will be worth $\frac{10}{12}$ of a point for each class you attend and a single missed class.

Quizzes 15%

Each week, we will have a quiz on that week's readings. The quizzes are meant to be gentle nudges to make sure you complete the readings ahead of time. Generally, the quizzes will focus on broad themes rather than picayune details. There will be 7 quizzes (9/21, 9/28, 10/5, 10/26, 11/9, 11/16, 11/30). I will take the average of your highest five quiz grades and that will count as your grade for this component. This means you can miss (or do poorly on) two of these without it affecting your grade. Quizzes cannot be made up because they are meant to ensure you've read the material before we talk about it.

Homework 25%

Nearly each week, you will be asked to submit homework assignments. The nature of these assignments may change slightly from week-to-week, but they will be designed for you to demonstrate mastery of the subject matter discussed in class.

Data Project/Presentation 25%

Over the course of the semester, you will be working on identifying a question of interest to you and then trying to answer that question with data using the methods we discuss in class. On the last day of class, you will be asked to give a short presentation on your question and findings. The project itself will count for 20% and the presentation for 5%.

Research Design (UG Only) 25%

The undergraduate students will have to develop a research design that identifies a question, proposes data that could be used to answer the question and discusses the methods that could be used to answer the question. The research design will be due on December 15, 2017.

Research Paper (G only) 25%

Graduate students in the course will have to propose a political science question of interest and write a paper that uses data to answer the question. The paper should have a short literature review, theoretical discussion culminating in a (set of) testable hypothesis(es), discussion of data source, statistical results, discussion and conclusion. The research paper will be due on December 15, 2017.

All assignments will be turned in through the your dropbox folder on the course's OWL site. Without exception, all assignments should be submitted as a .pdf file. This is generally a good habit to adopt as word document formatting can change from what you intend from computer to computer. That is, you could save the document assuming it will look a certain way and I could open it on my computer and it may appear quite differently. Further, you should make sure that it is as easy as possible for me to see what you did. I will give some more concrete guidance in class as to what your assignments should look like.

4 Absences, Late Assignments and Makeups

As I allow for one unexcused absence from class, attendance cannot be made up due to illness. If illness prevents turning in assignments on time, the illness must be documented according to Western's Policy on Accommodation for Illness.

(http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf) Accommodation for homework assignments will be handled through me. If you are seeking accommodation for the data project or the research design/paper, as these are worth more than 10% of the course's overall grade, accommodation must be sought directly through the Social Science Academic Counseling office. If you are going to be absent from class, you should notify me *before* the start of class.

For non-illness related absences, we will follow the same procedure, in that documentation must be provided as per the general guidelines mentioned above.

For unexcused absences, I will take 10% off the grade for assignments turned in up to one week late, 20% for assignments between 1 week and 2 weeks late, etc...

5 Academic Offenses

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

6 Course Schedule

9/7 Introduction/Preliminaries

9/14 Why Learn About Statistics?/What are data?

Readings:

- Hahn and Godley: Chapters 1 & 2
- Cathy O’Neil (2016) *Weapons of Math Destruction*. New York, NY: Crown Publishing.
- Eytan Bakshy, Solomon Messing and Lada A. Adamic (2015) “Expoure to Ideologically Diverse News and Opinion on Facebook” *Science* 348:6239, 1130-1132.

9/21 Univariate Statistics, Graphs and Probability Readings:

- Hahn and Godley: Chapters 3, 4 & 5.
- W. J. Hurley (2015) “Mandatory Drug Testing in the Canadian Workplace: A Note on the Recent Supreme Court Decision and Its Effect on the Misclassification Rate of Non- Drug Users”, *CHANCE*, 28:1, 21-26
DOI: 10.1080/09332480.2015.1016845
- Jeffrey S. Rosenthal (2014) “Statistics and the Ontario Lottery Retailer Scandal”, *CHANCE*, 27:1, 4-9, DOI: 10.1080/09332480.2014.890864

9/28 Measures of Central Tendency and Dispersion Readings:

- Hahn and Godley: Chapters 6 & 7
- Kaiser Fung, *Numbers Rule Your World* Chapter 1.
- Orley Ashenfelter & Richard Quandt (1999) “Analyzing a Wine Tasting Statistically”, *CHANCE*, 12:3, 16-20, DOI: 10.1080/09332480.1999.10542152

10/5 Sampling and Generalization Readings:

- Hahn and Godley: Chapters 8 & 9

10/12 Fall Reading Week Break

10/19 Computer Lab (SSC 1000)

10/26 Bivariate Statistics Readings:

- Hahn and Godley: Chapters 10 & 11
- Kaiser Fung, *Numbers Rule Your World* Chapter 3.
- Todd A. Kuffner & Stephen G. Walker (2017) “Why are p-values controversial?”, *The American Statistician*, DOI: 10.1080/00031305.2016.1277161

11/2 Class Cancelled

11/9 Bivariate Statistics for Nominal and Ordinal Data Readings:

- Hahn and Godley: Chapters 12 & 13

11/16 Bivariate Statistics for Interval/Ratio Data Readings:

- Hahn and Godley: Chapters 14 & 16
- Kaiser Fung, *Numbers Rule Your World* Chapter 2.
- Keith A. Willoughby (2001) “The Return of a Missed Field Goal in Canadian Football”, *CHANCE*, 14:3, 29-33, DOI: 10.1080/09332480.2001.10542280

11/23 Computer Lab (SSC 1000)

11/30 Regression Diagnostics (When models fail). Readings:

- Hahn and Godley: Chapters 14 & 16
- Kaiser Fung, *Numbers Rule Your World* Chapter 2.
- Bill Williams & David Williams (1997) “Are Salaries in the National Hockey League Related to Nationality?”, *CHANCE*, 10:3, 20-24, DOI: 10.1080/09332480.1997.10542037

12/7 Class Presentations

**APPENDIX TO UNDERGRADUATE COURSE OUTLINES
DEPARTMENT OF POLITICAL SCIENCE**

Prerequisite checking - the student's responsibility

"Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites."

Essay course requirements

With the exception of 1000-level courses, most courses in the Department of Political Science are essay courses. Total written assignments (excluding examinations) will be at least 3,000 words in Politics 1020E, at least 5,000 words in a full course numbered 2000 or above, and at least 2,500 words in a half course numbered 2000 or above.

Use of Personal Response Systems ("Clickers")

"Personal Response Systems ("clickers") may be used in some classes. If clickers are to be used in a class, it is the responsibility of the student to ensure that the device is activated and functional. Students must see their instructor if they have any concerns about whether the clicker is malfunctioning.

Students must use only their own clicker. If clicker records are used to compute a portion of the course grade:

- the use of somebody else's clicker in class constitutes a scholastic offence,
- the possession of a clicker belonging to another student will be interpreted as an attempt to commit a scholastic offence."

Security and Confidentiality of Student Work (refer to current *Western Academic Calendar* (<http://www.westerncalendar.uwo.ca/>))

"**Submitting or Returning Student Assignments, Tests and Exams** - All student assignments, tests and exams will be handled in a secure and confidential manner. Particularly in this respect, leaving student work unattended in public areas for pickup is not permitted."

Duplication of work

Undergraduate students who submit similar assignments on closely related topics in two different courses must obtain the consent of both instructors prior to the submission of the assignment. If prior approval is not obtained, each instructor reserves the right not to accept the assignment.

Grade adjustments

In order to ensure that comparable standards are applied in political science courses, the Department may require instructors to adjust final marks to conform to Departmental guidelines.

Academic Offences

"Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Submission of Course Requirements

ESSAYS, ASSIGNMENTS, TAKE-HOME EXAMS MUST BE SUBMITTED ACCORDING TO PROCEDURES SPECIFIED BY YOUR INSTRUCTOR (I.E., IN CLASS, DURING OFFICE HOURS, TA'S OFFICE HOURS) OR UNDER THE INSTRUCTOR'S OFFICE DOOR.

THE MAIN OFFICE DOES NOT DATE-STAMP OR ACCEPT ANY OF THE ABOVE.

Attendance Regulations for Examinations

EXAMINATIONS/ATTENDANCE (Sen. Min. Feb.4/49, May 23/58, S.94, S.3538, S.3632, S.04-097) A student is entitled to be examined in courses in which registration is maintained, subject to the following limitations: 1) A student may be debarred from writing the final examination for failure to maintain satisfactory academic standing throughout the year. 2) Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course will be reported to the Dean of the Faculty offering the course (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Dean of that Faculty, the student will be debarred from taking the regular examination in the course. The Dean of the Faculty offering the course will communicate that decision to the Dean of the Faculty of registration.

Medical Policy, Late Assignments, etc.

Students registered in Social Science should refer to

http://counselling.ssc.uwo.ca/procedures/having_problems/index.html for information on Medical Policy, Term Tests, Final Examinations, Late Assignments, Short Absences, Extended Absences, Documentation and other Academic Concerns. Non-Social Science students should refer to their home faculty's academic counselling office.

University Policy on Cheating and Academic Misconduct

Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence." (see Scholastic Offence Policy in the Western Academic Calendar).

Plagiarism Checking: "All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>)."

Multiple-choice tests/exams: "Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating."

Note: Information excerpted and quoted above are Senate regulations from the Handbook of Scholarship and Academic Policy. http://www.uwo.ca/univsec/academic_policies/index.html

PLAGIARISM*

In writing scholarly papers, you must keep firmly in mind the need to avoid plagiarism. Plagiarism is the unacknowledged borrowing of another writer's words or ideas. Different forms of writing require different types of acknowledgement. The following rules pertain to the acknowledgements necessary in academic papers.

A. In using another writer's words, you must both place the words in quotation marks and acknowledge that the words are those of another writer.

You are plagiarizing if you use a sequence of words, a sentence or a paragraph taken from other writers without acknowledging them to be theirs. Acknowledgement is indicated either by (1) mentioning the author and work from which the words are borrowed in the text of your paper; or by (2) placing a footnote number at the end of the quotation in your text, and including a correspondingly numbered footnote at the bottom of the page (or in a separate reference section at the end of your essay). This footnote should indicate author, title of the work, place and date of publication, and page number.

Method (2) given above is usually preferable for academic essays because it provides the reader with more information about your sources and leaves your text uncluttered with parenthetical and tangential references. In either case words taken from another author must be enclosed in quotation marks or set off from your text by single spacing and indentation in such a way that they cannot be mistaken for your own words. Note that you cannot avoid indicating quotation simply by changing a word or phrase in a sentence or paragraph which is not your own.

B. In adopting other writers' ideas, you must acknowledge that they are theirs.

You are plagiarizing if you adopt, summarize, or paraphrase other writers' trains of argument, ideas or sequences of ideas without acknowledging their authorship according to the method of acknowledgement given in 'A' above. Since the words are your own, they need not be enclosed in quotation marks. Be certain, however, that the words you use are entirely your own; where you must use words or phrases from your source, these should be enclosed in quotation marks, as in 'A' above.

Clearly, it is possible for you to formulate arguments or ideas independently of another writer who has expounded the same ideas, and whom you have not read. Where you got your ideas is the important consideration here. Do not be afraid to present an argument or idea without acknowledgement to another writer, if you have arrived at it entirely independently. Acknowledge it if you have derived it from a source outside your own thinking on the subject.

In short, use of acknowledgements and, when necessary, quotation marks is necessary to distinguish clearly between what is yours and what is not. Since the rules have been explained to you, if you fail to make this distinction your instructor very likely will do so for you, and they will be forced to regard your omission as intentional literary theft. Plagiarism is a serious offence which may result in a student's receiving an 'F' in a course or, in extreme cases in their suspension from the University.

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Adopted by the council of the Faculty of Social Science, October, 1970; approved by the Dept. of History August 13, 1991

Accessibility at Western: Please contact poliscie@uwo.ca if you require any information in plain text format, or if any other accommodation can make the course material and/or physical space accessible to you.

SUPPORT SERVICES

The Registrar's office can be accessed for Student Support Services at <http://www.registrar.uwo.ca>

Student Support Services (including the services provided by the USC listed here) can be reached at:
<http://westernusc.ca/services/>

Student Development Services can be reached at: <http://www.sdc.uwo.ca/>

Students who are in emotional/mental distress should refer to Mental Health@Western
<http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.