



The University of Western Ontario
SOCIOLOGY 3302A - 001
Introduction to Big Data
Fall 2022
Tuesdays 9:30-12:30, Room TC 205
In-Person

Instructor: Professor Michael Haan
Office Hours: by appointment
Department of Sociology, Office: SSC 5412
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Course Description: Big data are too large or complex to be handled by traditional methods. This course explores what big data are, where they come from, and what we can do with them. We will cover the ethical, philosophical, and methodological complexities involved, and do some introductory hands-on analysis.

Prerequisite(s): Sociology 2205A/B or 0.5 course from the Introductory Statistics Course List:
<https://www.westerncalendar.uwo.ca/Departments.cfm?DepartmentID=55&SelectedCalendar=Live&ArchiveID=>

Unless you have either the prerequisites 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. The 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.

Anti-requisite(s): none

Course Objectives and Learning Outcomes:

Course Material:

There is no ideal textbook for this course, but the following required book is close:

Viktor Mayer-Schönberger, and Kenneth Cukier. 2014. *Big Data: A Revolution That Will Transform How We Live, Work, and Think*. Boston: Houghton-Mifflin-Harcourt.

Yes, it's old, but it continues to provide an interesting and succinct introduction to the topic.

In addition to this book, I also plan to assign book sections and articles as necessary and appropriate. These will be made available on Western's OWL site for the course. If you are enrolled in the course, you should be able to access OWL and see the page for the course.

Communication:

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

Learning Outcomes:

- (1) Understand and engage with big data;
- (2) Learn the basics of big data collection, storage, and analysis;
- (3) Identify how to visualize big data;
- (4) Gain some hands-on experience working with big data;
- (5) Appreciate the security and privacy issues associated with big data.

Method of Evaluation:

Attendance 10%

One of my primary assumptions for students in upper-year courses is that your presence improves the learning environment for everyone involved (including me!). As such, you will lose one point for every week that you have an absence without a valid excuse. Additionally, I view being prepared for class as an essential component of attendance. Please come to class and do the required work; you are paying for it!

Midterm 30%

The midterm will cover all content covered in class up to that point. I anticipate that the exam will take place on October 25, 2022, although we may have to move this based on how quickly we cover the relevant content. The exam will be in-class, and you will have three hours to complete it.

Assignments (2 @ 10%) 20%

There will be two assignments for the course. The first will involve your participation in a debate on a topic pertinent to the content of the course. The use of big data in Social Science is still a relatively recent development, and as a result there are many ethical and philosophical issues that remain either partially or fully unresolved.

The second assignment will involve designing a big data study to investigate a topic of your choice. More details will be provided in-class.

Final Exam 40%

This will be a comprehensive, cumulative assessment of your knowledge and retention of materials covered throughout the semester. The exam will be in-person, and you will have three hours to complete it. Details on the date and location of the final exam will be made available later in the semester.

For both the midterm and the final exam, 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.

Tentative Course Schedule (the topics may change slightly to reflect student interest). Readings (which may be added to) appear in bold.

Week 1 (Sept. 13): Introduction to the Course: What are big data? How do they differ from ‘little’ data?

Week 2 (Sept. 20): Volume, Velocity, and Veracity: What are the different types of big data? Where do they come from? **No readings.**

Week 3 (Sept. 27): Now, more and messy: analytical challenges of big data. **Read Mayer-Schönberger and Cukier, Chapters 1-3.**

Week 4 (Oct. 4): Storing big data: A *very* basic introduction to server storage, cloud storage, and relational databases. **Reading TBA.**

Week 5 (Oct. 11): Correlation and Datafication: Is everything I learnt in Intro Stats wrong? **Read Mayer-Schönberger and Cukier, Chapters 4 + 5.**

Week 6 (Oct. 18): What are some of the security and privacy issues that surround big data? **Debate Day!**

Week 7 (Oct. 25): Midterm

October 31 - November 6, 2022: Fall Reading Week.

Week 8 (Nov. 8): What is the value and what are the implications of using big data? **Read Mayer-Schönberger and Cukier, Chapters 6 + 7.**

Week 9 (Nov. 15): Visualizing big data. **Reading TBA.**

Week 10 (Nov. 22): Controlling and harnessing big data **Read Mayer-Schönberger and Cukier, Chapter 8.**

Week 11 (Nov. 29): What’s next for big data and social science? **Read Mayer-Schönberger and Cukier, Chapters 9 + 10.**

Week 12 (Dec. 6): Catch-up and review. **Assignment #2 due.**

December 10-22, 2022: Examination period. At time of writing, Western had not yet posted its exam schedule.

Please note that the Sociology department has scheduled dates for makeup exams (only students with appropriate documentation will be allowed to write these exams):

- Midterm; Friday November 11 12:00-3:00pm Location TBA
- Final: Friday January 13th 12:00-3:00pm Location TBA

Policies for Assignment Deadlines:

I will deduct 10% per day for late assignments.

Contingency plan for an in-person class pivoting to 100% online learning:

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, affected course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

Student Absences:

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

For work totaling 10% or more of the final course grade, students must provide valid medical or supporting documentation to their Home Faculty Academic Counselling Office as soon as possible.

Please note that absences do not excuse students from completing all course content. Extensions will be granted as appropriate. Work that is not submitted before the final exam will be given a zero.

Absences from Final Examinations:

Students must provide valid medical or supporting documentation to their Home Faculty Academic Counselling Office as soon as possible. Academic Counselling will determine eligibility to write a Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

Missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own. Students should check the Western website to see what directives for COVID-19 are to be followed. Western has been and will continue to follow directives established by the Middlesex-London Health Unit. That directive will state whether students should or should not come to campus/class and any other requirements (e.g., masks are mandatory). Please check on your own and do not email the instructor, the Department Undergraduate Advisor/Coordinator or the Faculty of Social Science Academic Counselling Office.

Important Policies

Academic Consideration for Missed Work: Students must provide valid medical or supporting documentation in order to receive accommodation for missed work worth 10% or more of the final grade in the course. All required documentation for absences must be submitted to the Academic Counselling office of a student's Home Faculty. Individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds or for other reasons.

Western's policy on Accommodation for Medical Illness can be found at https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf. The student medical certificate is available at https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation: When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at <https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

All students pursuing academic consideration, regardless of type, must contact their instructors no less than 24 hours following the end of the period of absence to clarify how they will be expected to fulfill the academic responsibilities missed during their absence. Students are reminded that they should consider carefully the implications of postponing tests or midterm exams or delaying submission of work and are encouraged to make appropriate decisions based on their specific circumstances.

Accessibility Options: Students with disabilities or accessibility challenges should work with Accessible Education (formerly SSD http://academicsupport.uwo.ca/accessible_education/index.html), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#). Information regarding accommodation of exams is available on the Registrar's website: www.registrar.uwo.ca/academics/examinations/accommodated_exams.html

Scholastic 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: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

A Note on Plagiarism: Students must write their assignments in their own words. Whenever students take an idea 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 scholastic offence.

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 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 (<https://www.turnitin.com/>).

Mental Health: Students who are in emotional/mental distress should refer to Mental Health@Western (www.uwo.ca/health/mental_wellbeing/index.html) for a complete list of options how to obtain help.

Please visit the Social Science Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: [Academic Counselling - Western University \(uwo.ca\)](http://www.uwo.ca/academic_counselling/).

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at https://www.uwo.ca/health/student_support/survivor_support/get-help.html. To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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