CIS*6650: Topics in Computer Science: Slow Data (Fall 2023)

Course Information

Instructor

Dr. Deborah Stacey (dastacey@uoguelph.ca)

Lectures

Time: Mondays / Wednesdays 16:00 - 17:20
Room: REYN 1101

Prerequisite(s)

Appropriate undergraduate degree, intermediate-advanced programming skills

Overview

Slow Data will be a deep dive into the problems of data usage in analysis, machine learning, etc. because of bias, lack of metadata, provenance and other documentation, improper collection and problems with crowd sourcing and using low paid humans to classify or label data in large data sets, low quality, poor usage of metrics and analysis, problems with findability, accessibility, interoperability, and reusability (FAIR principles) and CARE (indigenous data usage principles), openness spectrum, and semantic interoperability. It is called *Slow Data* because this is a look at slowing down the pace of data set usage until these issues have been explored and documented.

This course will be of interest to students that are doing research where they have to create or search for and use large data sets. It will involve programming in Python mainly. There will be a large number of papers assigned to read and the deliverables will include a literature review, programming exercises, and a small project (individual or group depending on the size of the class).

Topics

1. What is data?

2. The state of data IRL

3. Problems with data

4. Data management and analysis

5. Metadata and provenance

6. Data principles

7. Bias

8. Sources of Data

9. AI and Data

10. Semantic interoperability

11. Data quality and impact of data

Evaluation

- Literature review (30%)
- Programming exercises (30%)
- Project (40%)

Readings

- Readings will be distributed in Mendeley (Slow Data group)
- You will receive an invitation to join this group from the instructor
- You can download the desktop app or use the web interface - see https://www.mendeley.com/reference-management/reference-manager/

Course Policy Statements

Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

CourseLink

Course announcements are posted on CourseLink and thus students are required to check the CourseLink site daily.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id number, and e-mail contact.

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Graduate Regulations

Graduate students should refer to
https://calendar.uoguelph.ca/graduate-calendar/general-regulations/ for all regulations and senior undergraduates in graduate courses should also refer to *https://calendar.uoguelph.ca/graduate-calendar/general-regulations/senior-undergraduates-graduate-courses/*.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student. When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway. Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day. Information can be found on the SAS website *https://wellness.uoguelph.ca/accessibility*.

Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
https://www.uoguelph.ca/registrar/calendars