

Faculty of Information and Media Studies
UNIVERSITY OF WESTERN ONTARIO

MIT 2157B: Planet Google

Winter 2016

**PRELIMINARY COURSE SYLLABUS (DECEMBER 2014):
SUBJECT TO CHANGE**

INSTRUCTOR INFORMATION

Grant Campbell, Associate Professor

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North Campus Building Room 206

Office Hours for Winter 2016: Thursdays, 12 noon-1 pm.

COURSE INFORMATION

University Community Centre Room 67

Tuesdays, 9:30-11:30 am

Thursdays, 9:30-10:30 am

REQUISITES

Antirequisite(s): The former MIT 2376F/G.

Prerequisite(s): None

Corequisite(s): None

COURSE DESCRIPTION

Discover how access to and control of behind-the-scenes information is a major force in our lives. This course explores how search engines harvest "big" data from users and use it to map, analyze, and exploit patterns of online behaviour for marketing, government and corporate intelligence, and other purposes.

See the Chart at the end of this document for a preliminary breakdown of the course content, week by week.

COURSE OBJECTIVES

1. To gain an understanding of large-scale data systems in their practical, theoretical, historical, social and cultural contexts (MIT Objective 1).
2. To gain an understanding of the processes and institutions involved in disseminating information, entertainment, and knowledge through big data technologies and services (MIT Objective 6).

3. To explore the connections between the control of big data technologies and democracy, the public sphere, capital accumulation, labour and occupations, and the environment (MIT Objective 6).

COURSE LEARNING OUTCOMES

Upon successful completion of this course, students should be able to:

1. **Comprehend** the theoretical principles that underlie key concepts of large-scale data systems, including algorithms, predictive analytics, linked data, and metadata.
2. **Recognize** key continuities and differences between the various paradigms of data that prevail in modern technological discourse, and to place these paradigms in an historical and social context.
3. **Critically engage** with statements in the popular and professional media related to big data, and in so doing distinguish fact from fiction, and truth from hype.
4. **Communicate** both their understanding and their critical engagement to organizations and individuals that would benefit from this knowledge, and be in a position to reward it.

REQUIRED TEXTS:

There is one required text for this class:

Mayer-Schönberger, Viktor, and Kenneth Cukier. 2013. *Big data: A revolution that will transform how we live, work, and think*. Boston: Houghton Mifflin.

Copies have been ordered for the Western Bookstore.

Other assigned readings will be available either freely on the Web or through the Library's journal collection.

ASSIGNMENTS

2 short papers, 10 % each Due: January 28, March 17	20 %
1 midterm test, February 9 , 2 hours, multiple-choice	30 %
1 term project, due at the end of term	40 %
Class attendance and participation	10 %
	100 %

CLASS POLICIES

Course Participation:

The term “Course Participation” includes the following components:

- Regular attendance in classes and participation in class discussion;
- Participation in online class discussions through the forum and wiki features on OWL.

Classroom Conduct, including the Use of Electronic Resources:

Due to the nature of the course content, students are encouraged to use their laptops during the class. Please do not use your laptop in a way that is disruptive to your colleagues or to the instructor.

PLEASE NOTE: THE FIRST CLASS, ON JANUARY 5, WILL BE OFFERED REMOTELY ON THE OWL WEBSITE. Thereafter, unless unexpected commitments require me to mount the class online, the lectures will not be provided at any time other than during the scheduled class period; it is the student's responsibility to attend the lectures and to take the necessary notes;

Use of cell phones for personal calls is not permitted during the class period; if you anticipate that you will need to receive an important call, please sit near an exit, and leave the room as unobtrusively as possible;

No recording of the class, either audio or video, is permitted without the instructor's permission.

Assignments and Grading:

All assignments will be graded by the instructor, in adherence to the *Guidelines to the MIT Grading Range* at http://www.fims.uwo.ca/acad_programs/undergrad/mit/courses/grading.htm.

Penalties for late assignments will be 5 % per day unless an extension has been negotiated in advance.

Academic Accommodation:

All requests for extensions must be submitted by email to the instructor at least two weeks before the assignment due date.

Medical Accommodation

All requests for permanent, long-term academic accommodation must be made through the Office of Services for Students with Disabilities.

For Western University policy on accommodation for medical illness, see: www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

Student Medical Certificate (SMC): studentservices.uwo.ca under the Medical Documentation heading

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic

Counselling office of their home Faculty and provide documentation. It will be the Dean's Office that will determine if accommodation is warranted.

For work worth less than 10% of the final grade, the instructor will consider requests for academic accommodation on medical grounds made in a timely manner in writing or by appointment in office hours. Such requests need not be accompanied by documentation. The instructor may, however, decide to require documentation be submitted to the appropriate Academic Counselling office.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for accommodation on medical grounds, or for other reasons. All documentation must be submitted to the Academic Counselling office of a student's home Faculty.

Compassionate Accommodation

Academic accommodation (extensions, makeup tests and exams, additional assignments etc.) may be given to students on compassionate grounds. The situations for which compassionate accommodation can be given must be serious, including significant events such as death in the immediate family, trauma (fire, robbery, harassment, muggings, car accidents, etc.) or emergency situations. Documentation is required. If a member of your immediate family is seriously ill, obtain a medical certificate from the family member's physician and submit the documentation to your Academic Counsellor. If you have been involved in a severe accident, fire or some other exceptional crises, obtain a copy of the police report or be prepared to provide the necessary documentation upon request.

Bereavement

Generally, for deaths within a student's immediate family (parents, guardians, caregivers, siblings, spouses), bereavement leave is granted, upon provision of documentation. For deaths within a student's extended family, academic accommodation is given for one to three days, upon provision of documentation.

Students seeking additional bereavement leave for religious or other reasons should contact their Academic Counsellors, and provide valid documentation.

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance.

<http://multiculturalcalendar.com/ecal/index.php?s=c-univwo>

Further specific information is given in the Western Academic Calendar.

Communication with the Instructor:

For email communication, please use my regular UWO email address at gcampbel@uwo.ca. Uploading of electronic assignments and other activities requiring security will take place through the class website on OWL.

Please communicate with courtesy, clarity and accuracy.

Support Services

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

Other support services on campus:

Office of the Registrar: www.registrar.uwo.ca

Student Development Centre: www.sdc.uwo.ca

Psychological Services: www.sdc.uwo.ca/psych

Services for Students with Disabilities: www.sdc.uwo.ca/ssd

Accessibility Information: www.accessibility.uwo.ca/

Writing Support Centre: www.sdc.uwo.ca/writing

Learning Skills Services: www.sdc.uwo.ca/learning

Indigenous Services: indigenous.uwo.ca/

International and Exchange Student Centre: www.sdc.uwo.ca/int

Career Centre at Western: www.success.uwo.ca/careers/

FIMS Grading Policy

FIMS recently changed its class average policies, which specify the range between which the average marks for courses at particular levels (1000, 2000, 3000) must fall. Previously, these policies applied to all courses. **Now they apply only to required MIT courses.**

The MIT program now has the following class average policy:

- All 1000-level MIT required courses (i.e., 1020E; 1025F/G; 1050A/B) will have a class average of between 67 and 72%.
- All 2000-level MIT required courses (i.e. 2000, 2100, 2200, 2500) will have a class average of between 70 and 75%.
- All 3000-level MIT required courses (i.e. 3000, 3100) will have a class average of between 72 and 77%.
- 4000-level MIT courses and courses with fewer than 20 enrolled students will be exempt from this grading policy.
- **Elective courses have no class average requirement.**

FIMS remains committed to rigorous academic standards, and to grading practices that give high marks only for high quality work. To this end, FIMS undergraduate instructors mark according to the Guidelines to the MIT Grade Range, using the full range of marks available. Please consult these Guidelines to see the standards work is expected to meet.

http://www.fims.uwo.ca/acad_programs/undergrad/mit_mpi/courses/grading/averages.htm

Guidelines to the MIT Grade Range

These guidelines are benchmarks, and are not to be followed as rigid regulations. They will be adjusted as appropriate to take into account the level of the course and any specific instructions given by a professor. As well, competency in English language usage (including spelling and grammar) may be taken into account in the assignment of grades by individual instructors. Note that the 70-79 grade range is broken into two divisions, as this is the grade range into which a large number of students fall.

90-100 (Outstanding, A+)

The report shows sparkling originality and exhibits a high degree of critical analysis of the topic. Sophisticated synthesis and analysis of the theoretical and conceptual dimensions of the topic are demonstrated. Mastery of complex material and ideas is immediately evident. The topic is treated with sensitivity and subtlety of thought. The quality of the writing and background research is exemplary.

80-89 (Excellent, A)

The report shows originality and exhibits a high degree of critical analysis of the topic; it gets to the heart of the matter with comments and/or questions. It is clearly focused and logically organized. The quality of writing makes the report immediately understandable. Mastery of complex material and ideas is demonstrated. The report is of appropriate length, while preserving the priorities and emphasis of the material, so that the result is meaningful, not simplistic.

75-79 (Very Good, B+)

The report shows above average analysis, critical thinking and independent thought. Claims are supported by ample evidence and the components of the topic are well-researched and presented. The topic is addressed in reasonable depth and/or breadth and covers material appropriate to the course. The analysis is organized around focal points and the argument is easily followed. The report demonstrates an above average ability to write in an intelligible style and to condense material meaningfully and with a concern for priorities of that material.

70-74 (Good, B)

The report shows an attempt at analysis and critical thinking. Claims are supported by reasonable evidence. The topic is addressed in some depth and/or breadth, with references to the appropriate literature and course material. The analysis is organized around focal points. The report is generally well written and well argued.

60-69 (Competent, C)

The report demonstrates adequate comprehension of the topic. The report is on topic and is a reasonable summary of material covered in the course, but goes no further. Facts are stated accurately; the quality of writing is sufficiently intelligible with enough elaboration and enough connections made between ideas to permit a reader to understand the point of the report.

50-59 (Marginal, D)

The report shows less than adequate comprehension of the topic and of the material covered by the course. The report is a less than adequate summary of sources and/or is considerably off-topic. Facts are stated inaccurately or ambiguously; the writing style is difficult to follow; there is insufficient elaboration to permit reader's comprehension of relations among ideas; little judgment is shown in selecting detail for inclusion in the report.

Below 50 (Unacceptable, F)

The report demonstrates a failure to comprehend the topic. The material is disorganized and unintelligible. The report clearly does not meet the minimal requirements of the assignment.

Course Schedule (SUBJECT TO CHANGE)

January 5	1	Course Introduction Introduction to Concepts of Data, Search Engines and Algorithms
January 7	2	Search Engine Design
January 12	3	Search Engine Crawlers and Indexers
January 14	4	Google: Search Engine Ranking
January 19	5	Search Engine Ranking Natural Language Processing
January 21	6	Google: Advertising
January 26	7	Data mining and Models of Machine Learning Recommender Systems
January 28	8	Google: Analytics
February 2	9	Predictive Analytics
February 4	10	Predictive Analytics
February 9	11	Term Test
February 11	12	Introduction to Big Data (Mayer-Schönberger and Cukier, Ch. 1)
		READING WEEK
February 23	13	Linked Data
February 25	14	Linked Data Networks
March 1	15	Introduction to Big Data Data Set Size (Mayer-Schönberger and Cukier, Ch. 2)
March 3	16	Introduction to Big Data, cont.
March 8	17	Data Inconsistency (Mayer-Schönberger and Cukier, Ch. 3)
March 10	18	Language: Translation
March 15	19	Correlation vs. Causation (Mayer-Schönberger and Cukier, Ch. 4)
March 17	20	Politics: the Obama campaigns
March 22	21	Turning Abstract Concepts into Data (Mayer-Schönberger and Cukier, Ch. 5)
March 24	22	“Value (Mayer-Schönberger and Cukier, Ch. 6)
March 29	23	Implications of Big Data (Mayer-Schönberger and Cukier, Ch. 7)
March 31	24	Implications of Big Data, Cont. Mayer-Schönberger and Cukier, Ch. 8)
April 5	25	Course Conclusion