Faculty of Information and Media Studies UNIVERSITY OF WESTERN ONTARIO

MIT 2157A: Planet Google

Fall 2017

COURSE SYLLABUS

INSTRUCTOR INFORMATION

Grant Campbell, Associate Professor gcampbel@uwo.ca
519-661-2111 x88483
FIMS-Nursing Building, Room 4083
Office Hours: Tuesdays, 1-2 pm. or by appointment

COURSE INFORMATION

Health Sciences Building, Room 11 Tuesdays, 9:30 am-12:20 pm

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.

Consult the course OWL website for weekly readings.

COURSE OBJECTIVES

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

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:

Students will be required to read, completely, ONE of the following:

- Kelly, K. (2016). The inevitable: understanding the 12 technological forces that will shape our future. New York: Viking.
- O'Neil, C. (2016). Weapons of math destruction: how big data increases inequality and threatens democracy. New York: Crown Publishers.

Copies have been ordered for the Western Bookstore.

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

ASSIGNMENTS

1 Essay: Due October 3	25 %
1 Book Review: Due October 31	30 %
1 Product Analysis: Due December 5	35 %
Class attendance and participation	10 %
	100 %

CLASS POLICIES

Course Participation:

The term "Course Participation" includes the following components:

- Regularity of attendance (70 % of participation grade)
- Participation in class and/or online discussions (30 % of participation grade)

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.

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:

This course is listed as a "Non-Essay Course." *This does not mean that there is no writing. Effective communication is central to the learning outcomes*. However, only one of the assignments can be defined as expository writing in the traditional academic sense. The assignments are meant to enable you to communicate across a range of professional communication styles.

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. The official guidelines are also attached to this Syllabus.

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 to the instructor at least two weeks before the assignment due date.

The attached guide provides the official FIMS policies on:

- Academic Offenses
- Plagiarism
- Academic Accommodation
- Medical Accommodation
- Compassionate Accommodation
- Religious Accommodation
- The FIMS Grading Policy
- Guidelines to the Grade Ranges in MIT
- Support Services

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COURSE OUTLINE Topics, Readings and Assignments by Week

Tuesday, September 12	
Topics:	1. Introduction
	2. Metadata
Readings:	Jacobs, M. (2017, August 3). Rotten Tomatoes is causing Hollywood's latest existential crisis. <i>Huffington Post</i> . http://www.huffingtonpost.ca/entry/rotten-tomatoes-is-causing-hollywoods-latest-existential-crisis_us_59834084e4b06d488874a560
Assignments Due:	None

Tuesday, September 19	
Topics:	1. Search Engine Design
_	2. Designing an Index
Readings:	Required: Croft, W.B., D. Metzler, & T. Strohman. (2010). Search engines: Information retrieval practice. Boston: Addison-Wesley. Chapter 2: "Architecture of a Search Engine." pp. 13-29. Hillis, K., M. Petit, & K. Jarrett. (2013). Google and the culture of search. New York: Routledge. "Introduction: Google and the Culture of Search": pp. 1-29.
	Optional: O'Kane, J. (2017, June 30). Music, film industries celebrate Google ruling. <i>The Globe and Mail</i> . p. B1, B2.
Assignments Due:	None

Tuesday, September 26	
Topics:	1. Search Engine Design
	2. Ranking Algorithms
Readings:	Required:
	USA Today. (2008). Google's Matt Cutts: How to get better visibility
	on Google. USA Today talking tech videos.
	https://www.youtube.com/watch?v=5GK0aQrCDEo
	Levy, S. (2011). <i>In the plex: How Google thinks, works, and shapes our lives</i> . New York: Simon & Schuster. Part 4: "Google's Cloud: Building Data Centers that Hold Everything Ever Written." pp. 167-212.
	Optional:
	Ekström, A. (2015). The moral bias behind your search results. TED
	Talks. https://www.youtube.com/watch?v=_vBggxCNNno
Assignments Due:	None

Tuesday, October 3	
Topics:	1. Search Engine Advertising
	2. Advertising as a Business Model
Readings:	Required:
	Varian, H. (2010). Search advertising with Google. 9 YouTube
	Videos.
	Cutts, Matt. (2012). Search engine optimization tips, Google SEO tutorial by Matt Cutts https://www.youtube.com/watch?v=lFaP5huV5XI
	Optional:
A	Faces Due
Assignments Due:	Essay Due

October 17	
Topics:	1. Linked Data
_	2. Ontologies
Readings:	Required:
_	Shiri, A. (2012). Powering search: The role of thesauri in new
	information environments. Medford: Information Today. Chapter 4:
	"Thesauri in Web-based Search Systems": pp. 103-136.
	Optional:
Assignments Due:	None

Tuesday, October 24	
Topics:	1. Linked Data
_	2. Linked Data Archives
Readings:	Required:
	Heath, T., & Bizer, C. (2011) Linked Data: Evolving the Web into a
	Global Data Space (1st edition). Synthesis Lectures on the Semantic
	Web: Theory and Technology, 1:1, 1-136. Morgan & Claypool.
	Chapters 1 and 2: "Introduction" and "Principles of Linked Data."
	http://linkeddatabook.com/editions/1.0/
	Optional:
	Berners-Lee, T. (2009). The next web of open, linked data. <i>TED talks</i> .
	https://www.youtube.com/watch?v=OM6XIICm_qo
	nttps://www.youtube.com/waten:v=OMOAHCHI-qo
Assignments Due:	None

Tuesday, October 31	
Topics:	1. Big Data
	2. Recommender Systems
Readings:	Required:
	Mayer-Schönberger, V., & K. Cukier. (2013). Big data: A revolution
	that will transform how we live, work, and think. Boston: Houghton
	Mifflin. Chapter 1: "Now": pp. 1-18.
	Moscco, V. (2014). To the cloud: Big data in a turbulent world.
	Boulder: Paradigm. Chapter 5: "Big Data and Cloud Culture": pp. 175-
	226.
	Optional:
Assignments Due:	Book Report

Tuesday, November 7	
Topics:	1. Big Data
	2. The Naïve Bayesian Model
Readings:	Required:
_	Spence, R. (2001). <i>Information visualization</i> . Marlow: Addison-Wesley.
	Chapter 3: "Interpretation of Quantitative Data." pp. 33-51.
	Optional:
	Meyer, M. (2011). Information visualization for scientific discovery.
	TED Talks.
	https://www.youtube.com/watch?v=Sua0xDCf8MA
Assignments Due:	None

Tuesday, November 14	
Topics:	1. "Weapons of Math Destruction"
_	2. Big Data's Effect on Culture
Readings:	Required:
	O'Neil, C. (2016). Weapons of math destruction: How big data
	increases inequality and threatens democracy. New York: Crown.
	Chapter 1: "Bomb Parts: What is a Model?": pp. 15-31.
	Optional:
	Liptak, A. (2017, May 1). Sent to prison by a software program's secret
	algorithms. New York Times.
	https://www.youtube.com/watch?v=Q7a5yQ3Xn44
	Stillwell, D. (2015). Online advertising is creepy: It doesn't have to be. <i>TED Talks</i> . https://www.youtube.com/watch?v=Q7a5yQ3Xn44
Assignments Due:	None

Tuesday, November 21	
Topics:	1. "Weapons of Math Destruction"
_	2. Big Data's Effect on Research
Readings:	Required:
	Borgman, C. (2015). <i>Big data, little data, no data: Scholarship in the networked world</i> . Cambridge: MIT Press. Chapter 1: "Provocations": pp. 3-16.
	Optional: Bell, G. (2013). Accelerating science with (very, very) big data. <i>TED Talks</i> . https://www.youtube.com/watch?v=HSLUpVzAEDM
Assignments Due:	None

Tuesday, November 28	
Topics:	1. The Future
	2. Evaluation of Information
Readings:	Required: Kelly, K. (2016). The inevitable: Understanding the 12 technological forces that will shape our future. Chapter 6: "Sharing": pp. 135-164.
	Optional:
Assignments Due:	None

Tuesday, December 5	
Topics:	1. Course Conclusion
Readings:	None
Assignments Due:	Product Analysis

NOTES FROM THE FIMS DEAN'S OFFICE

Rights and Responsibilities

The conditions governing a student's ability to pursue their undergraduate education at Western are ratified by Senate and can be found on the Academic Policies section of the University Secretariat:

http://www.uwo.ca/univsec/academic policies/rights responsibilities.html

Statement on 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

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.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software Turnitin 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.

Accommodation Policies

Students with disabilities work with Services for Students with Disabilities (SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here:

http://www.uwo.ca/univsec/pdf/academ ic_policies/appeals/accommodation_disa bilities.pdf

Medical Consideration

Students seeking academic consideration 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 in the form of a <u>Student Medical Certificate</u>. It will be the Dean's Office that will determine if consideration is warranted.

For work worth less than 10% of the final grade, the instructor will consider requests for academic consideration 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 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 consideration on medical grounds, or for other reasons. All documentation must be submitted to the Academic Counselling office of a student's home Faculty.

For Western University policy on consideration for medical illness, see: http://www.uwo.ca/univsec/pdf/academic-policies/appeals/accommodation-illness.pdf and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic policies/appeals/medicalform.pdf

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 crisis, obtain a copy of the police report or be prepared to provide the necessary documentation upon request. 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 should contact their Academic Counsellors with 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. Additional information is given in the Western Academic Calendar.

FIMS Undergraduate Grading Policy

The MIT, MPI and MTP programs now have the following class average policy:

- Normally, first year courses required for entry into an MIT or MPI module (MIT 1020E and MIT 1025F/G) are expected to have a course average between 68-72%.
- Normally, second year required courses (MIT 2000, 2100, 2200, 2500) are expected to have a course average between 70 and 75%.
- Normally, third year required courses (MIT 3000, 3100) are expected to have a course average between 72 and 77%.

Elective courses and 4th year seminars have no recommended course averages.

Support Services

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

SUPPORT SERVICES - LINKS

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:** http://indigenous.uwo.ca/ International and Exchange Student Centre: www.sdc.uwo.ca/int Career Centre at Western:

www.success.uwo.ca/careers/

Appendix A: Suggested Grade Ranges in MIT, MPI and MTP

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.

Appendix B: Guidelines of Academic Appeals for FIMS Students

(http://www.fims.uwo.ca/current/counselling/undergradcounselling/appeals.htm)

Grounds for Appeal:

The Faculty of Information and Media Studies does not view the appeals process as an opportunity for students to solicit a second opinion on a grade assigned to a particular piece of work. Appeals must pertain to the final grade in a course, and will only be entertained if sufficient grounds for appeal can be met, including: medical or compassionate circumstances, a defect in the evaluation process, bias, inaccuracy or unfairness.

Stages in the Appeals Process:

The first stage of the process is a discussion of the disputed grade with the appropriate Teaching Assistant (if applicable), and subsequently, the course Instructor. For grades assigned to individual assignments, essays, lab reports, projects and tests completed throughout the term, the student first must appeal to the Teaching Assistant or Instructor of the course, within three weeks of the date on which the Instructor or Teaching Assistant returned the assignments to the class. The Appeals Committee will not hear any further appeals about the final grade in any course unless this first step has been taken.

If completion of the first stage has not resolved the matter, the student may appeal the final grade in the course to the FIMS Appeals Committee. Appeals of final grades must be within the time frame indicated in the Undergraduate Calendar. It is the student's responsibility to ensure that the appeal is submitted within the deadline. The student shall submit a formal letter to the FIMS Appeals Committee outlining the grounds for the appeal, the remedy sought and relevant materials including the information about when and with whom (Teaching Assistant and/or Instructor) the student met, as described in Stage 1. If the appeal involves a request for work to be regraded, the original marked work and a clean copy (if possible) must be included. If the appeal is commenced once the deadline has passed, it will not be considered either by the Appeals Committee or by the Associate Dean.

The FIMS Appeals Committee has the discretion to determine whether the grounds for appeal have been met.

If the Committee deems that the reasons for the appeal are not legitimate, the Associate Dean will be informed. The appeal will be terminated and the student will be informed.

If the Committee decides that the grounds for appeal have been met, the following steps will be taken:

1. the course Instructor will be shown the appeal letter and offered an opportunity to make a written response;

2..if work is to be regraded, a reader will be appointed who is competent in the area in question and was not involved in the assignment of the original mark. The reader will consider the work in question and will arrive at an independent evaluation. If there is a large discrepancy between the original mark and the regraded mark, a second reader may be appointed by the Committee. If the appointed reader(s) arrive at a grade within five marks of the original, the original grade will stand.

The FIMS Appeals Committee will review the evidence and will make a recommendation on the case to the Associate Dean Undergraduate.

The Associate Dean Undergraduate will consider the recommendation from the Appeals Committee, and will make a decision. The student and the instructor will be notified promptly and in writing by the Associate Dean of the decision and of the change in grade, if any. Within the Faculty of Information and Media Studies, the Associate Dean's decision on the matter is final.

Further appeals are possible under certain circumstances to the Senate Review Board Academic (for Undergraduate students) or to the Faculty of Graduate Studies (for Graduate students) but the student should carefully consult the guidelines regarding such Appeals.