

K 778
Selected Topics in Information Systems I
Summer 2019 Course Outline

Information Systems
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

This seminar course provides an Introduction to Selected Topics in Data Science

INSTRUCTOR AND CONTACT INFORMATION

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COURSE DESCRIPTION

This course provides an introduction to selected topics in data science, mainly through readings selected from the research literature.

LEARNING OUTCOMES

A general understanding of the nature of data science, including its sub-topics, its uses, and its implementation methodologies.

REQUIRED COURSE MATERIALS AND READINGS

Detailed in reading list in course schedule below.

EVALUATION

Term Paper Presentation	30%
Written Term Paper	40%
Participation	30%
Total	100%

Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme. **(SUGGESTED conversion scheme)**

LETTER GRADE	PERCENT
A+	90 - 100
A	85 - 89
A-	80 - 84
B+	75 - 79
B	70 - 74
B-	60 - 69
F	00 - 59

Assignment #1 (Presentation of Term Paper on Data Science)

This assignment is worth 30% of your final grade and will be marked individually.

Assignment #2 (Written Term Paper on Data Science)

This assignment is worth 40% of your final grade and will be marked individually.

Participation

Participation in class (discussion of research papers) is worth 30% of your final grade.

Please review the Graduate Examinations Policy (if applicable):

<http://www.mcmaster.ca/policy/Students-AcademicStudies/GradExamsPolicy.pdf>

ACADEMIC DISHONESTY

It is the student’s responsibility to understand what constitutes academic dishonesty. Please refer to the University Senate Academic Integrity Policy at the following URL:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at:

<http://www.mcmaster.ca/academicintegrity>

STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

<http://sas.mcmaster.ca>

POTENTIAL MODIFICATIONS TO THE COURSE

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

MISSED ACADEMIC WORK

Late assignments will not be accepted. No extensions are available except under extraordinary circumstances. Please discuss any extenuating situation with your instructor at the earliest possible opportunity.

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http://www.copyright.mcmaster.ca/Access_Copyright_Agreement

RESEARCH USING HUMAN SUBJECTS

ONLY IF APPLICABLE

Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The fundamental imperative of research involving human participation is respect for human dignity and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

<http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/Default/>

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University's research ethics guidelines:

<http://reo.mcmaster.ca/>

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You **MUST** respect this request and cannot present this information in class or communicate it in any

form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

COURSE SCHEDULE

READING LIST

Note that there is a great deal of flexibility in the course content, and additional relevant readings may be found and discussed in addition to or in place of those listed in the schedule below.

SESSION AND TOPIC	ARTICLES
<p>Week 1: Summarize and Discuss Articles May 8</p>	<p>Baesens, B., Bapna, R., Marsden, J. R., Vanthienen, J., & Zhao, J. L. (2014). Transformational issues of big data and analytics in networked business. <u>MIS Quarterly</u>, 38(2), 629–631.</p> <p>Jones, M. (2018). What we talk about when we talk about (big) data. <u>The Journal of Strategic Information Systems</u>, 28, 3–16.</p>
<p>Week 2: Summarize and Discuss Articles May 15</p>	<p>Ghasemaghaei, M. (2019). Does data analytics use improve firm decision making quality? The role of knowledge sharing and data analytics competency. <u>Decision Support Systems</u>, 120, 14–24.</p> <p>Ghasemaghaei, M., Hassanein, K., & Turel, O. (2017). Increasing firm agility through the use of data analytics: The role of fit. <u>Decision Support Systems</u>, 101, 95–105.</p>
<p>Week 3: Summarize and Discuss Articles May 22</p>	<p>Grover, V., Chiang, R. H., Liang, T.-P., & Zhang, D. (2018). Creating Strategic Business Value from Big Data Analytics: A Research Framework. <u>Journal of Management Information Systems</u>, 35(2), 388–423.</p> <p>Günther, W. A., Mehrizi, M. H. R., Huysman, M., & Feldberg, F. (2017). Debating big data: A literature review on realizing value from big data. <u>The Journal of Strategic Information Systems</u>, 26(3), 191–209.</p>
<p>Week 4: Summarize and Discuss Articles May 29</p>	<p>Chen, D. Q., Preston, D. S., & Swink, M. (2015). How the use of big data analytics affects value creation in supply chain management. <u>Journal of Management Information Systems</u>, 32(4), 4–39.</p> <p>Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: from big data to big impact. <u>MIS</u></p>

	<u>Quarterly</u> , 1165–1188.
Week 5: Summarize and Discuss Articles June 5	Sun, S., et al. (2018), Understanding the factors affecting the organizational adoption of big data. <u>Journal of Computer Information Systems</u> . 58 (3): p. 193-203. Ritu Agarwal, Vasant Dhar (2014) Editorial—Big Data, Data Science, and Analytics: The Opportunity and Challenge for IS Research. <u>Information Systems Research</u> 25(3):443-448. https://doi.org/10.1287/isre.2014.0546
Week 6: Summarize and Discuss Articles June 12	Varun Grover, Roger H.L. Chiang, Ting-Peng Liang & Dongsong Zhang (2018) Creating Strategic Business Value from Big Data Analytics: A Research Framework, <u>Journal of Management Information Systems</u> , 35:2, 388-423, DOI: 10.1080/07421222.2018.1451951
Week 7: Summarize and Discuss Articles June 19	Zhaohao Sun, Lizhe Sun & Kenneth Strang (2018) Big Data Analytics Services for Enhancing Business Intelligence, <u>Journal of Computer Information Systems</u> , 58:2, 162-169, DOI: 10.1080/08874417.2016.1220239
Week 8: Summarize and Discuss Articles July 24	Hoyt RE, Snider D, Thompson C, Mantravadi S (2016) IBM Watson Analytics: Automating Visualization, Descriptive, and Predictive Statistics <u>JMIR Public Health Surveill</u> 2(2):e157 URL: http://publichealth.jmir.org/2016/2/e157/ doi:10.2196/publichealth.5810 Note: The term paper topic should be chosen and outlined during this session.
Week 9: Summarize and Discuss Articles July 31	Prakhar Mehrotra (2019) Applications of Artificial Intelligence in the Realm of Business Intelligence, (Chapter 1) in Jérôme Darmont and Sabine Loudcher (eds) <u>Utilizing Big Data Paradigms for Business Intelligence</u> , IGI Global, Hershey Pa.
Week 10: Summarize and Discuss Articles Aug 7	Amir Gandomi and Murtaza Haider (2015) Beyond the hype: Big data concepts, methods, and analytics, <u>International Journal of Information Management</u> 35, 137–144 Nada Elgendy and Ahmed Elragal (2016) Big data analytics in support of the decision making process, <u>Procedia Computer Science</u> 100, 1071-1084.
Week 11: Summarize and Review Aug 14	General Review and Evaluation of Course Material
Week 12: Aug 21	Oral Presentation of Term Paper
Week 13: Aug 28	Written Version of Term Paper