

eHealth 745 eHealth Innovations and Trends Winter 2022 Course Outline

Information Systems Area DeGroote School of Business McMaster University

COURSE OBJECTIVE:

THIS COURSE REVIEWS AND DISCUSSES CRITICAL ISSUES RELATED TO INNOVATIONS IN E-HEALTH, INCLUDING THE DRIVERS FOR THESE INNOVATIONS, THE TRENDS THAT ARE DEVELOPING IN THE E-HEALTH, SOME NOTABLE SUCCESSES / FAILURES OF E-HEALTH TO MEET EXPECTATIONS, AND WHAT MIGHT BE DONE TO IMPROVE THE POTENTIAL OF E-HEALTH AS A POSITIVE FORCE FOR CHANGE IN OUR HEALTHCARE SYSTEM. IT IS DESIGNED TO BE COMPLETELY ONLINE.

Instructor and Information

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| Wednesday Evenings 7:00 to 10:00 pm | |
| DR. JOSEPH TAN | |
| Instructor | Teaching Assistants |
| tanjosep@mcmaster.ca | Babak Safaei; Ivneet Nagra safaeb1@mcmaster.ca; nagraik@mcmaster.ca |
| Office: Online | Office: Online |
| Office Hours: before/after class or by appointment | RJC 214 Tuesday 11:30 – 2:30 pm |
| Contact via McMaster or Avenue to Learn Email Systems | Contact via McMaster Email system |
| Course Website: http://avenue.mcmaster.ca | |

COURSE ELEMENTS

| | | | | | | | |
|-----------------|-----|-------------------|-----|-------------|-----|-----------------|-----|
| Avenue: | Yes | Leadership: | Yes | IT skills: | Yes | Global view: | Yes |
| Participation: | Yes | Ethics: | Yes | Numeracy: | Yes | Written skills: | Yes |
| Evidence-based: | Yes | Innovation: | Yes | Group work: | Yes | Oral skills: | Yes |
| Experiential: | Yes | Guest speaker(s): | Yes | Final Exam: | No | | |

Course Description

eHealth 745, attended via a mix of online and face-to-face (ftf) sessions, is “blended.” It overviews the latest eHealth innovations, trends, and how novel developments are affecting the provision of health care, whether they be regarded by users as successes and/or failures, and the related reasons for such debates. Learning will be via group collaboration on topics that students have reviewed in detail, by class discussions of short and longer cases, by presentations of the instructor, visiting experts, and by developing, writing, and presenting concepts and cases on selected eHealth topics.

LEARNING OUTCOMES

Upon completion of this course, students will be able to complete the following key tasks:

- Explain the role that eHealth plays in the different health learning systems, based on topics introduced throughout the course;
- Assess the prospects of eHealth innovations proposed in specific circumstances in the North American health care system;
- Define the capabilities needed to successfully develop and deploy a specific eHealth innovation;
- Formulate a plan that considers how to modify an organization's capabilities in preparation for an eHealth innovation;
- Implement changes, as necessary, in order to position the organization in preparation for implementing an eHealth innovation in the organization.

REQUIRED COURSE MATERIALS AND READINGS

Avenue registration for course content, readings and case materials
<http://avenue.mcmaster.ca>

Online access to the McMaster Library to search for journal articles or books relevant to the topics being reviewed in the course.

OPTIONAL COURSE MATERIALS AND READINGS

Required Textbook: Tan & Olla (eds). *Adaptive HMIS* (4th Edition, 2020); Others: Open to student research of suitable journal publications and/or books.

Case Studies: Students can use the below link to purchase the Harvard Business Case Package required for eHealth 745.

<https://hbsp.harvard.edu/import/889186>

EVALUATION

All students will be evaluated largely in term of individual participation (in class) and interactions with others (online), shared contribution to group presentations and group case development & presentations. Class learning is via introductory instructor lectures, discussions of cases relevant to specific topics, student reviews, and presentations of topic material, and/or (presentations by visiting speakers, if these can be scheduled). Please see pages 8-11 for more details. Each class will feature a specific topic, and student groups will be organized such that each group will volunteer to review material on one specific topic and present their reviews on the day assigned for that topic, based as much as possible on published literature. Students may use videos to illustrate topic material but these are limited to five minutes maximum per presentation. Depending on the class size, individuals rather than teams may be assigned to present class material. Presentations should take approximately one hour, not including discussion. In-class discussion contributions will be assessed by the instructor

while all written submissions will be assessed by the TA, reviewed by the Instructor only if there is an “appeal.” Suggested references are offered for each topic (see pages 11-13), but students should also search for additional sources of material upon which to base their work/discussions. Presenters are also asked to give their thoughts about whether and why: a) the subject under discussion is an innovation; b) it represents a trend; and c) its implementation to date has been a success or a failure. Each presentation should include a discussion of how well the topic subject integrates and works with other existing systems and with healthcare processes in general. Each presentation will be followed by a general class discussion of issues related to the topic, and students will also be graded on their participation mark heavily based on their contribution to class discussions. Some sessions will be enriched by invited guests, and/or the TA uploaded materials.

Students will also develop cases based on topics in real-world setting relevant to the selected topics and present them during the last two weeks of the course, but these may NOT be regarded by eHealth students as potential scholarly papers. Term paper topics are to be decided after discussion and agreement with the instructor. The deadline for deciding on a case topic is during reading week, when an abstract of the proposed case has to be submitted and approved by the instructor. Term papers should fall between 25-32 pages (1.5 line spacing), and should include title page, abstract, table of contents, introduction, literature review, findings, discussion, and reference list, plus appendices as appropriate (15-20 pages for the mid-term theoretical component and 10-12 pages for the final-term case component). Exceptions to this list may be allowed if discussed beforehand with the instructor.

Your final grade will be calculated as follows:

Components and Weights

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| Individual Participation in class/group case discussions on short cases and more | 20% |
| Group class presentation on assigned lecture topics | 10% |
| Written Theoretical Draft submission (Group assigned topics: 4k words to be combined with final class project case submission) | 10% |
| Mid-term: Short Q & A plus a written 48-hour individual Case Analysis (15%); | 15% |
| Written Group Case Reports (with clear demarcation of individual-linked contribution for group work: 10-12 pages: 15%) | 15% |
| Final Term Presentation (15%) & Self-Developed Case Component (15%): 10-12 pages to be contributed as a group case to go with their revised Theoretical draft being finalized. | 30% |
| Total | 100% |

Grade 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.

| | |
|----|----------|
| A+ | 90 - 100 |
| A | 85 - 89 |
| A- | 80 - 84 |
| B+ | 77 - 79 |
| B | 74 - 76 |
| B- | 70 - 73 |
| F | 00 - 69 |

Communication and Feedback

Students who are uncomfortable in directly approaching an instructor regarding a course concern may send a confidential and anonymous email to the respective Area Chair or Associate Dean:

<http://www.degroote.mcmaster.ca/curr/emailchairs.aspx>

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Administrative Assistant.

Instructors are encouraged to conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term.

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>

Plagiarism detected in written material may be reported to those responsible for overseeing academic integrity. You may therefore wish to submit your written term paper to Turnitin.com or Grammarly to check for plagiarism before submitting it for marking. To see guidelines for the use of Turnitin.com, please go to:

<http://www.mcmaster.ca/academicintegrity/turnitin/students/index.html>

Missed Mid-Term Examinations / Tests / Class Participation

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the eHealth Office or MBA Academic Services Office, the weight for that test/participation will be distributed across other evaluative components of the course at the discretion of the instructor. Documentation explaining such an absence must be provided to the eHealth Office or MBA Academic Services Office within five (5) working days upon returning to school.

To document absences for health-related reasons, please provide the Petition for Relief for MBA Missed Term Work and the McMaster University Student Health Certificate which may be found on the DeGroot website at <http://mbastudent.degroot.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program.

To document absences for reasons other than health related, please provide a Petition to the eHealth Office or the Petition for Relief for MBA Missed Term Work and documentation supporting the reason for the absence.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances, have the option of applying for special exam arrangements. Such requests must be made to the MBA Academic Services Office or (for eHealth students) the eHealth Program Office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the MBA Academic Services Office or eHealth Program Office.

If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

Missed Final Examinations

A student who misses a final examination without good reason will receive a mark of 0 on the examination.

All applications for deferred and special examination arrangements must be made to the MBA Academic Services Office or eHealth Program Office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if granted, must be

satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

Requests for a second deferral or rescheduling of a deferred examination will not be considered.

Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred Final Examination and the McMaster University Student Health Certificate can be found on the DeGroot website at <http://mbastudent.degroot.mcmaster.ca/forms-and-applications/> Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. Students who write examinations while ill will not be given special consideration after the fact.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office of eHealth Program Office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons (for example religious, or for part-time students only, work-related reasons):

Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.

Part-time students who have business commitments which make it impossible to write examinations at the times posted are required to produce a letter on company letterhead from the student's immediate supervisor stating that they are unable to be present owing to a specific job commitment.

In such cases, applications must be made in writing to the MBA Academic Services Office or eHealth Program Office at least ten business days before the scheduled examination date and acceptable documentation must be supplied.

If a student is representing the University at an academic or athletic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the MBA Academic Services Office or eHealth Program Office.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office or eHealth Program Office within ten business days of the end of the examination period.

Note: A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere. In cases where the student's standing is in doubt, the Graduate Admissions and Study Committee may require that the student with one or more deferred

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.

RESEARCH USING HUMAN SUBJECTS

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>

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://www.mcmaster.ca/ors/ethics>

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. **If you plan to carry out research as part of this course that involves gathering and analyzing data from human subjects, please discuss this with your instructor well in advance of planning and implementing your study.**

Revised COURSE SCHEDULE

eHealth 745 eHealth Innovations and Trends Winter 2022 Course Schedule (**Revised on Blended Delivery**)

| # | Day | DESCRIPTION | Readings |
|---|-----------------------------------|---|---|
| 1 | Tues Jan. 11 On- line | <p>Class Outline, Schedule, Participation; Presentation topics. Lecture 1: Emergent Perspectives in Health IS/IT [Chapter 1]</p> <p>Case 1a: The Case of Lose It! [pp. 186-188] Case 1b: The Leadership of Future Health [pp. 387-388.]</p> <p>Note: Virtual class at: https://mcmaster.zoom.us/j/92461097404?pwd=c0xYUHJEckkvbjNzSmFEYlIWRllnQT09</p> | <p>Instruct or Lecture {pp. 3-23}</p> <p>Harvard Case Package</p> |
| 2 | Jan 18 On- line | <p>Lecture 2a,b: Precision Medicine & Gene Therapy; Commercialization of Digital Health [Chapters 2,3] Tutorial on Big Data (Technology Review I) <i>Self-Read</i></p> <p>Case 2a: Ginger.io [pp. 93-94] Case 2b: Digital Health Technology Commercialization Strategies [pp. 391-400]</p> <p>Note: Virtual class at: https://mcmaster.zoom.us/j/92461097404?pwd=c0xYUHJEckkvbjNzSmFEYlIWRllnQT09</p> | <p>Instruct or Lecture {pp. 25-43; 69-80}</p> |
| 3 | Jan. 25 On- line | <p>Tutorial on Online Health Info Seeking (Policy Review I) <i>Self-Read</i> Case Coach: How to Read & Analyze Cases [HARVARD] Lecture 3a,b: Data in Digital Health Systems; SCM, CRM, ERP, EHR, CPOE, CDS & PP [Chapters 4-6]</p> <p>Case 5: Physician Intervention in Reducing Readmission and Tele-Health Solution [pp. 282-287]</p> <p>Note: Virtual class at: https://mcmaster.zoom.us/j/92461097404?pwd=c0xYUHJEckkvbjNzSmFEYlIWRllnQT09</p> | <p>Instruct or Lecture {pp. 97-111; 125-139; 151-166}</p> |
| 4 | Jan 28 On- line | <p>Mid-Term Course Feedback & Evaluation First 90-minute class substitute for Feb 1st, 2022 Invited Lecture [Prof Bharat Maheshwari] Topic and time slot will be finalized with invited Speaker (time to be determined or “tbd”)</p> | Time tbd |
| 5 | Feb 8 | Mid-Term: Parts 1 & 2 (Case Analysis - 48 hours Take Home) | |

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| | RJC | Part I: Short Q & A (Theoretical Part: PP. 1-166; 186-188 or Parts 1 & 2 of Text except Chapter 7) Part II: Unannounced Case Analysis (Practical Part: PP. 391-443 or Part 5 of Text - Take Home) | |
| 6 | Feb 15 RJC | Topic: Digital Health Leadership: Strategic Planning, Project Management & Globalization in Health IT/IS Group 1 Lecture [Chaps 8, 11 & 14; Case 3]: Digital Health IT Leadership & Globalization Case 3: St. Joseph Mercy Oakland (SJMO): Digital Leadership in Health Care [pp. 413-424] <i>Group (2) Case 6 Presentation</i> Case 6: St Elizabeth Case: Innovation in Health Care [Harvard] | Group 1 Lecture |
| 7 | Feb 18 On-line | Second 90-minute class substitute for Feb 1 st , 2022 Invited Lecture [Prof Phillip Olla] Topic and time slot will be finalized with invited Speaker (time to be determined or “tbd”) | Time tbd |
| 7 | Feb 22 On-line | Reading Week Time devoted to finalizing plan for group-developed Case(s) Online session – Interactions with Instructor/TA on Final Project(s) | |
| 8 | Mar 1 RJC | Topic: Digital Informatics in Pharma, Public Health & Related Policies, Privacy/Security, Ethics & Other Issues in Light of COVID-19 Development Group 4 Lecture [Chaps 7, 10, 12; Case 4]: Digital Informatics Education, Ethics & Privacy Issues Case 4: Theranos [pp. 427-437] <i>Group (3) Case 8 Presentation</i> Case 8: Vancouver Coastal Health Authority takes on COVID-19 [Harvard] | Group 4 Lecture |
| 9 | Mar. 8 RJC | Topic: Digital Health Consumer Informatics Core, Emerging & Future Technologies Group 2 Lecture: [Chaps 9, 13, 15; Case 7] Case 7: PLM [pp. 439-443] <i>Group (4) Case 10 Presentation</i> Case 10: Melissa Wood Health: How to Win in the Creator Economy [Harvard] Due: Grp Lecture Drafts for Feedback | Group 2 Lecture |
| 10 | Mar. 15 RJC | Topic: Blockchain: Understanding Digital Transformation & Disruptive e-Technology Challenges in Health Care (or, An Approved Special Topic) | Group 3 Lecture |

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| | | <p>Group 3 Lecture [Technology Review II, Class Readings on Blockchain (BC) as provided herein after the schedule; Case 9] Case 9: The Impact of EMRs on Clinical Workflow & Practices: Perspectives from a Physician Resident in Ottawa, Canada [pp. 403-411]</p> <p>Group (1) Case 11 Presentation Case 11: ChangSheng BioTech Case [Harvard]</p> | {pp. 112-124; Two BC readings ; 403-411} |
| 12 | Mar 22 On-line | <p>One-on-One Group Interactions w/TA &/or Instructor Group Discussions</p> <p>Invited Speaker: Mike Dohan et al. Tutorial on Case Development</p> <p>Cases 12 Class Discussion Only Cases 12: LiveCase: BioLife Wicked Problems [Harvard]</p> <p>Note: Virtual class at: https://mcmaster.zoom.us/j/92461097404?pwd=c0xYUHJEckkvbjNkSmFEYllWRllnQT09</p> | Q & A on New Cases |
| 13 | Mar 29 RJC | <p>Student Case Projects (1, 2) Presentations I; Class Discussions</p> | Combine Theory + New Case |
| 14 | Apr 5 RJC | <p>DeBriefing of eHealth 745 Final Class Discussions on live Case(s) and Final Project Submissions</p> | |

Additional Class Readings for Group 3 Lecture

1. S. Biswas, K. Sharif, F. Li, and S. Mohanty, "Blockchain for e-health-care systems: Easier said than done," Computer, vol. 53, no. 7, pp. 57–67, 2020.
https://www.smohanty.org/Publications_Journals/2020/Mohanty_IEEE-COMPUTER_2020-Jul_Blockchain-Challenges.pdf
2. GlobeChain: An Interoperable Blockchain for Global Sharing of Healthcare Data - A COVID-19 Perspective. Sujit Biswas, Kashif Sharif, Fan Li, Anupam K. Balragi, Zohaib Latif, Saraju P. Mohanty
http://www.smohanty.org/Publications_Journals/2021/Mohanty_IEEE-MCE_2021-Sep_GlobeChain-Blockchain-Interoperability.pdf