



eHealth 745 eHealth Innovations & Trends Winter 2023 Course Outline Information Systems (IS) Area DeGroote School of Business McMaster University

COURSE OBJECTIVE

This course offers eHealth students an integrated learn-by-participation approach to draw insights from and share logical thinking about past and current developments as well as explore future possibilities on the critical issues relating to eHealth innovations and trends. It also provides a capstone series of experiential learning to students via cases of varying length and complexity involving the applications of previously learned knowledge, frameworks, models and theories in leadership, the design of eHealth or digital health care systems processes, strategies, and more. Students will participate actively to contribute to new thinking in the form of book chapters, case developments encompassing eHealth informatics theories, methods, and applications linked to past, current, and future eHealth innovations, trends and developments.

INSTRUCTOR AND CONTACT INFORMATION

eHealth 745 Dr. Joseph Tan

Instructor

tanjosep@mcmaster.ca Office: RJC 256; By Arrangements Office Hours: Via virtual appointments TA for eHealth 745 Mr. Babak Safaei

Email: safaeb1@mcmaster.ca

Class in RJC

Tuesday 11:30 am – 2:20 pm Office Hours: Via virtual appointments

Guest Lecturers: May be scheduled from time to time either for physical or via Zoom classes depending on weather, convenience and availability of speakers; however, no more than two (2) separate class sessions will be allocated for this purpose; see Schedule or consult Avenue weekly

COURSE ELEMENTS

Credit Value: Leadership: IT skills: Yes Global view: Yes Written skills: Yes Avenue: Yes Ethics: Yes Numeracy: Yes Participation: Yes Oral skills: Yes Yes Innovation: Group work: Yes Evidence-Based Yes Guest Speaker(s) Yes Final Exam: No Experiential Yes

COURSE DESCRIPTION

This course is taught via a *mixed mode* of in-person/online sessions for eHealth students with only a handful classes anticipated to be via online on selected dates, such as when guest speakers are being arranged or for interactions of student(s) with TA/Instructor on final course projects or when severe weather prevents convenient gathering of the students. Unlike traditional lectures, however, the class format is designed for very active participation from students contributing to discussions on eHealth innovations and trends to new cases developments. Missing in-class/online discussions will impact on one's total grade as only up to 50% of course grade will be group-based; the rest, individually targeted.

A key goal is to foster acute skills critical for students in presenting new ideas, cases, and arguments individually and/or as part of a group. Such presentations will be on topics relating to digital healthcare and eHealth innovations that students have reviewed in detail plus discussions of relevant cases to specific topics via co-presentations of instructor/TA, colleagues and classmates, visiting experts, and by student(s) developing, writing, and presenting papers/cases on eHealth topics of interests individually/groups.

Specific Topics covered include, but not limited to:

- Overview of eHealth Perspectives & Self-reflections
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- eHealth Strategic Analysis & Maturity Formulation (Stages of Growth)
- eHealth Innovation Models & Assessing digitalization opportunities for eHealth Software Developments
- M-Health Apps, Devices, Architectures, and Infrastructures
- eHealth Commercialization or Venture Capital & Entrepreneurship in eHealth Genomics & Beyond
- eHealth Analytics, Metrics & Evaluation; eHealth Project Procurements and Implementation issues
- Privacy, Confidentiality, Security, Ethical & Legal Issues in eHealth;
- Innovative eHealth business (problem solving v. decision making) case developments
- Future of eHealth, including AI, robotics, smart homes and more (self-care management)

LEARNING OUTCOMES

Upon successful completion of this course, students should be able to complete the following tasks:

- A. Write individual book chapters; work effectively individually or with others to research, analyze and present relevant cases applicable to the concepts being advanced;
- B. Assume the role of the decision maker/s or consultant to key stakeholder(s) in various organizational situations, and perform the following:
 - 1. Assess business models and strategies of eHealth initiatives and other commercial ventures in various stages of maturity
 - 2. Assess situations facing organizations to identify critical issues, and prioritize these in terms of urgency and importance towards successfully developing or deploying an eHealth solution
 - 3. Assess the health of a care setting using a variety of frameworks and metrics (e.g. PEST, Porter's five forces, SWOT) in addition to managerial accounting and finance and HR principles
 - 4. Leverage entrepreneurship and innovation principles to generate alternatives which address the identified issues in various situations and contexts to prepare for adopting an eHealth innovation
 - 5. Identify valid criteria for comparing the generated alternatives to select the ones that are most suited for the situation at hand
 - 6. Draw a realistic action plan to implement the selected alternatives
 - 7. Draw a contingency plan to address any potential risks during the execution of the action plan;

- 8. Professionally present the above analysis and action plan
- C. Develop critical evaluation and critiquing skills to professionally present the above analysis and action plan in competitive situations.

REQUIRED COURSE MATERIALS & READINGS

- 1. Texts:
 - a. <u>Adaptive HMIS</u> (Tan eds) Jones & Bartlett Learning (Required as 3 Major Cases drawn from this book will be used for student individual/grp presentations)
 - b. *Digital Health Care (Olla-Tan eds) Part 5 of this text contains a variety of selected cases* which can be adapted/used as examples when presenting your topics (Optional/Alt. refs.)
 - c. **Learning With Cases** *Mauffette-Leenders*, et al., 1997, Richard Ivey School of Business (Optional);
- 2. Additional readings will be made available to students via Avenue-to-Learn or via instructor's direct emails/postings. Students are expected to read the texts (as per schedule) prior to class-time.

COURSE OVERVIEW & ASSESSMENT

For optimal learning within a simulated hands-on environment, all assigned text/case readings are expected to be completed **prior to in-class discussions**. Random "cold-calls" will be permitted on students who have not been assigned for class presentation during specific class session(s). Otherwise, deliverables include individual v. group slides/reports due prior to class; notably, except for **questions to be raised** to the individual or group presenting, details of individual reports must not be discussed a priori among classmates and must be submitted for grading to the TA – **late** submissions will **not** be graded. Students who submit individual reports on any assigned case(s) must do so independently while formulating their **own** thinking, evaluations and/or recommendations. To aid instructor in assigning in-class participation grades, all students must display a name tag for all classes, and if failed to do so, may simply lead to **zero** participation grade (intentionally or not).

The instructor oversees all case debates/discussions and tracks weekly attendance to assign participation grades with zero toleration for plagiarists (copycats). For all assigned individual/group presentations, slides are due prior to class with individual/group's participation mandatory. Questions relating to cases may or may not be posed for debates. This year, eHealth delivery comprises three (3) parts.

Part-1 (Jan-Feb) focuses on active textbook(s)/paper(s) readings and individual contributions via a book chapter, including analysis & critique of past contributions, published or unpublished sources including cases, emphasizing selected *topics assigned for student-presentations*. Mid-Term, covering only readings prior to mid-term as scheduled, will be held just before reading week with grades and feedback to students following submission of student's book chapter contributions following reading week.

Part-2 (Mar), emphasizes more complex individual/group-led cases requiring in-depth group thinking, debating and detailed reporting. Individual/Group reports must provide a rationalized view of the opportunities, challenges, and risks within eHealth entrepreneurship and innovation, and prioritize key issues linked to well-articulated criteria alongside their envisioned recommended solution among alternatives and contingency plan(s). Students work individually or in groups of twos (no more than 2 students are permitted in a group) to analyze the assigned case and formulate their evaluations and strategic plans, resulting in an individual/group report to be graded by the TA.

Following mid-term, running in parallel to reading week & Part-2 of the course, **Part-3** (**Mar-Apr**), comprises developmental work for a specific eHealth project as part of a class competition, contributing to analytical insights while leveraging learning throughout the entirety of the course. All final eHealth case projects must be approved by the instructor and will be peer-reviewed, as well as commented by the TA, resulting in a final report and a case innovation guidance piece (of publishable quality) to be graded by the TA (oversee by the instructor). Missed tests/submissions on due dates will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Late assignments will be penalized 100% and not be graded.

Learning in this course will occur largely through essays (publishable book chapters), case analysis and debates, with independent (individualized) v. group participation and/or reporting. Whenever possible, feedback and exchanges on cases of varying length and projects within the assigned topical domains will serve to evaluate performance of participating students. The mid-term will comprise a series of short Q & A plus longer Open questions and a take home portion of mini-cases to complement the case analysis exercises. The components of each student's grade will be as follows, adjusted for peer evaluation:

Your final grade will be calculated as follows:

Grade Component	Weight	Description
Engagement/Ind. Class Presentations of Contributed Chapter (Parts 1-3)	15%	3% Attendance (individual-based) 5% in-class/on-line contributions to discussions 7% in-class individual Topic Presentations of Students' Book Chapters.
Essay – Individual Chapter Contribution (Part -1) Due-Date: Later after reading week as scheduled	15%	Based on an assigned topic, each student must pen a 2,200 - 2,450 word essay, chapter contribution on (i) past or historic developments and lessons learned (3%); (ii) current or to-date developments or applications known (3%); and (iii) future innovations and applications for setting being anticipated (3%); the rest of 6% will go to overall appeal and general layout with integrative examples (mini-cases) embedded in the chapter discussion (use those chapters in the required/optional texts to model your own chapter contributions).
Mid-term (Part-1) Date: TBD – likely to be pre-reading week	20%	Individual-based – two parts: (1) in-class with short Q&A on the relevant readings, including the provision of responses to a series of open questions (10%); and (2) do a 48-hour take-home multi (mini-)cases analysis (10%).
Individual/Group Case Analysis/Report (Part-2: as per class schedule)	20%	10% Case Presentation of Assigned Cases 10% Team (1-2) Case Report
Group Final Course Project (Part-3: as per class schedule)	30%	15% Individual/Group eHealth Final Course Project 15% Team (1-2) Final Presentation

COURSE DELIVERABLES

Assignment #1 – Essay – Individual Chapter Contribution

This assignment is worth 15% of your final grade and will be marked individually. You will read the two texts on topics related to your liking, do your own research on the assigned topic, develop your chapter contributions with questions for readers, discuss important aspects of past understanding surrounding the topic, emphasize current developments and applications that are deemed successful for health informatics but still challenged, identify these challenges that you feel your next (future) innovative developmental idea can best over towards an integrated piece as a chapter contributions. Your essay must be between 2,200 to 2,450 words.

Mid-Term Part #1 - Short & Longer Responding Exam Q&A

This is a Q & A examination for two hours that accounts for 10% of your final grade. The in-class portion is a **closed-book** exam. You will be expected to have mastered all of the assigned readings from the required text (*Chapters 1-6*; 8-11 as noted) plus any readings/class presentations offered via A2L prior to Mid-Term.

Mid-Term Part #2 - Case Exam Take-Home for 48-72 hours

This is a take home multi (mini-)case exam, which will ask specific questions relating to the selected case(s) as there will be multiple case(s). This part accounts for 10% of your total grade. You will be responsible for reading, analyzing, and typing up a full solution to the case. Each solution must be completed individually.

Class Individual/Group Case Presentation as Scheduled

This is a more complex full case analysis worth 20% of course grade vis-à-vis 1-2 person collaborating in the case analysis work depending on the class enrollment figures. Key skills would include the ability to think and contribute ideas like a leader, creating your own presentation slides while overcoming all technical issues faced in the delivery, be aware of others' feeling and reactions towards your presentation and the ability to respond to questions raised by your audience. You must also do background research and project current/future developments beyond the case to score high marks.

Participation

To earn participation marks individually, there will be no excuse for failure to showcase your name cards (possibly with photos when online) to ascertain credits are given to your individual participation. You must have a name card, or (in case of Zooming and other online sessions, log in, with your **full first and last name** clearly written and displayed for every class). Since student participation is an important component of this course, official McMaster student ID photographs will be used to ensure that each student is assessed accurately. The instructor will use the photograph to ensure the accuracy of participation marks, group work, and for identifying students for grading purposes

Final Course Project

This final project is intentionally cumulative, and is worth 30% of total grade – past exercises of students in the eHealth 745 have chosen to generate a "publishable" case worth 15% of final grade (see examples published in the two texts required for this course; as well, 15% additional grade is allocated to having the project professionally presented to an audience comprising the instructor, TA(s), classmates or other invites – assessment will be peer-based. The written case (if it's such) must also have a logic guiding document to showcase its purpose, potential case questions to be asked and the real-life lessons to be learned.

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/students intro.htm

Organizations that you are working with are likely to prefer that some information be treated as confidential. For any approach to collect data from human subjects, you must consult your instructor before undertaking any such study.

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.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TA(s) 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 Area Administrative Assistants. All students must receive feedback regarding their progress prior to the final date by which a student may cancel the course without failure by default. For Level 1 and Level 2 courses, this feedback must equal a minimum of 20% of the final grade. For Level 3 courses and above, this feedback must equal a minimum of 10% of the final grade.

Instructors may solicit feedback via an informal course review with students by Week #4 to allow time for modifications in the curriculum delivery.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work" and the link below;

http://ug.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

For information on the various types of academic dishonesty please refer to the <u>Academic Integrity</u> <u>Policy</u>, located at https://secretariat.mcmaster.ca/university-policies-procedures- guidelines/

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY/PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software.

All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. email, Avenue to Learn (A2L), web pages, TopHat, MS Teams, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course.

The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities,

and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the <u>Code of Student Rights & Responsibilities</u> (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the <u>RISO</u> policy. Students should submit their request to their Faculty Office *normally within 10 working days* of the beginning of term in which they anticipate a need for accommodation <u>or</u> to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

RESEARCH USING HUMAN SUBJECTS

All researchers conducting research that involves human participants, their records or their biological material are required to receive approval from one of McMaster's Research Ethics Boards before (a) they can recruit participants and (b) collect or access their data. Failure to comply with relevant policies is a research misconduct matter. Contact these boards for further information about your requirements and the application process.

McMaster Research Ethics Board (General board): https://reo.mcmaster.ca/ Hamilton Integrated Research Ethics Board (Medical board): http://www.hireb.ca/

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in eHealth 745 will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other that may be announced during lecture and/or on A2L. It is your responsibility to read this course outline, to familiarize yourself with the course policies and to act accordingly.

Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.

Tentative Course Schedule eHealth 745: eHealth Innovations & Trends Course Schedule Winter 2023

#	Date	Topic	Case Presentations	Deliverables
1	Jan10 RJC	Course overview eHealth Developments Innovation & Regenerative Sustainability theme Essays for Chapters; eHealth 745 series of projects	Course Outline & finalizing on Tentative Schedule Chps 1-2, pp. 3-43	Forming groups & assigning topics— each group comprising 1-2 members in total
2	Jan17 RJC	Choosing a Topic for a Publishable Chapter/Paper v. How Cases are Read, Analyzed & Reported – Developing your own real-life cases (Part 2 is hosted by the TA) Research Organize Thoughts & Layout Questions/Responses	A2L from TA	Case – For Class Illustration only Mid- Term Exam Reviews: Using Tan-Olla Fitness Trackers Case as an ILLUSTRATION for Q & A
3	Jan 24 In-Person with Online access for Guest Speakes	• Structuring a good essay & writing a comprehensive case report & What's involved in Final Project for eHealth 745? Guest Speaker 1 on Pan-Ontario TeleMedicine (Dr. Bharat, TBD)	Collaboration, Analysis & Reporting	BUSINESS MODELS FOR SUSTAINED EHEALTH IMPLEMENTATION: LESSONS FROM TWO CONTINENTS (A2L) ATTENDANCE TRACKED
4	Jan 31 RJC	• Choice of Topics Individual Verbal v. (Ind. Slides due) of Topic Presentations – 45 minutes presentation limit for each person; *Topic to be finalized	Self-Care Management*	Individual/Grp (1*) Present Individual/Grp (2*) Present Individual/Grp (3*) Present
5	Feb 7 RJC	 Individual Presentations Continued Digital Health Technology eHealth Innovations & Challenges 	*eHealth Privacy, Security, Legislation/Regulations	Individual/Grp (4*) Present Individual/Grp (5*) Present Individual/Grp (6*) Present

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6	Feb 14	Mid-Term: A few short & longer essay questions + Unannounced Mini-Cases (TAKE-HOME)	Exam to be released at 11:30 am with Q&A due @ 1:45am Feb 14 (Partly online)	(48-hour take-home cases to be studied/analyzed due 11:30am February 16 th , 2023)
7	Feb 21	Online Mid-Term Feedback & Evaluation – STOP n' GO; Reading Week; Groups to form to generate proposals for final course projects to be submitted for online discussions with TA/Instructor	Proposal for final Course Projects must be approved prior to visiting real-world site for a case development	Project Proposal Approval via online Chps 12; 13-15 pp. 291-309; 319-386
8*	Feb 28	Adoption of Innovation; New Challenges & Strategies Other eHealth Leadership & Sustainability Issues	Case 2: EMR pp. 403-411 Case 3: SJMO pp. 4 <u>13-424</u>	Group 1/6* Present/Report Group 2/5* Present/Report
9*	Mar 7 RJC	Feedback on Mid-Term Exam Ethical Commercialization Thinking; Privacy, Security, Legislation & Regulation	Case 4: Theranos pp. 427-437 eCommercialization	Group 3/4* Present/Report All final Chapter Drafts contributions due for grading/feedback Pan-Ontario Telehealth networks/projects
10	Mar 14	• Real-World Project Site(s) - Data Gathering; Preparation for Final Projects;	Individual/Group Consults	Group-TA/Instructor Virtual Meetings only with consults if needed.
11	Mar 21 RJC	Groups 1/2 presentations • 2 nd Guest Speaker (Dr. Phillip Olla)	Presentation slides Zoom session with Guest Speaker, Dr. Phillip Olla	TA will be present to listen in on these presentations
12	Mar 28	Groups 3/4 presentations Feedback on how final projects can be improved to all groups	Presentation slides must be submitted prior to final project presentations	TA will be present to listen in on these presentations
13	Apr 4	•Online Reflections on Final Projects & Interactions with TA/Instructor on final submissions	Final Chapters due	Final Project reports due in 14 working days.