

eHealth701
Research and Evaluation Methods in eHealth
Winter 2022 Course Outline

MSc eHealth
McMaster University

COURSE OBJECTIVE

This course will provide background and basic principles of research and evaluation methods for eHealth students. The course will study research/evaluation methods of such eHealth applications as electronic medical records systems or handheld devices to provide decision support as well as research/evaluation USING eHealth applications. Examples of these latter applications are data mining of electronic health records information to determine prognostic data on individuals or construction of and data analyses using data from large prospective population databases. The course is online and will require students to contribute weekly to discussions. Most weekly units will be asynchronous but may meet in real-time online as decided by the group. Evaluation is based on participation, 2 assignments, and a final paper and presentation.

INSTRUCTOR AND CONTACT INFORMATION

Dr. Cynthia Lokker
Instructor
lokkerc@mcmaster.ca
Office: CRL 137
Office Hours in Teams:
Thursdays, 12:00-12:45 pm
Tel: (905) 525-9140 x22208

TBD
TA

Course website: MS Teams TBD

COURSE ELEMENTS

Credit Value:	3	Leadership:	No	IT skills:	No	Global view:	Yes
Avenue:	No	Ethics:	Yes	Numeracy:	Some	Written skills:	Yes
Participation:	Yes	Innovation:	Yes	Group work:	No	Oral skills:	Some
Evidence-based:	Yes	Experiential:	No	Final Exam:	No	Guest speaker(s):	No

COURSE DESCRIPTION

The course will be offered online with a few/no synchronous sessions but mostly independent study and asynchronous discussions. Students will be expected to read, view, and understand material to contribute to online discussion forums.

The course does not include a recorded lecture for each of the units. Given the content, there are high quality videos in the public domain to support the readings and for many of the units I have included links to a video. You will cover the content in the readings, by watching linked videos, completing any tasks and assignments, and through discussion with your classmates and instructor. As this is a graduate-level course, the expectation is for independent learning, supported by interactions with classmates and the instructor through the discussion forums and real-time meetings.

The calendar will include deadlines for submissions of assignments (this may be detailed elsewhere depending on the functionalities in teams). Detailed instructions on the assignments and rubrics can be found in teams.

I will be monitoring the discussion forums on Wed and Fri afternoons as scheduled tasks in my calendar and more regularly if I am tagged in a comment/question. This will allow me to monitor the conversations and address any concerns while maintaining time for my other work commitments. I recognize that most of you will be working as well and will need to schedule your own time for engagement. Please connect in the discussion forums at least twice in a week and abide by the timelines (discussion forums for a unit are active for 2 weeks). This should help us all keep on track. Feel free to post early in the forums, just not after the start time. If you have questions related to the content, please ask in the discussion forums so that collectively we can help each other learn.

The key to discussion forums in online courses is for students to connect and advance their communal understanding of the content NOT for me to mark what you know. PLEASE do not write long responses to discussion questions that limit the ability of your colleagues to also engage. I am looking for engagement with the content, not weekly essays on it. (nobody wants to read pages and pages of discussion forum threads. From my experience, this is not supportive of learning). The course will be offered online with a few/no synchronous sessions but mostly independent study and asynchronous discussions. Students will be expected to read, view, and understand material to contribute to online discussion forums.

Students will participate in an online journal club where each will upload a summary and critical appraisal of a peer-reviewed research article, facilitate discussion around that article, and submit a summary of the discussion.

Course website: All course materials will be posted Microsoft Teams. It is your responsibility to monitor the space and you may post questions in our discussion forum.

LEARNING OUTCOMES

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

- Understand the basic tenets of science, research, and evaluation, how they differ and are the same, and how they are important to the practice of eHealth.
- Develop good research questions, find and appraise appropriate literature, and write the foundation of a literature review.
- Appraise designs of research and evaluation projects and apply commonly used evaluation frameworks.
- Know the perspectives and tools of research and evaluation in relation to controlled/experimental trials, observational studies (case-control, cohort, and qualitative methods), and synthesis methods (systematic reviews and meta-analyses).
- Write proposal for research or evaluation of an eHealth tool or product.

REQUIRED COURSE MATERIALS AND READINGS

MS Teams registration for course content, readings and materials	\$ FREE
Health Research Methods A Canadian Perspective. Edited by Kate Bassil and Denise Zabkiewicz 2014. Oxford University Press.	
Additional readings for each week will be posted online.	\$115.00

EVALUATION

Written assignments are used to evaluate knowledge; critical appraisal skills; critical thinking, analysis, and synthesis skills. They test the understanding of principles or relationships, foster independent thinking and learning, and develop writing skills. Written assignments are assessed on content, organization, style, and mechanics.

Communication and critical thinking skills will be further developed through online discussion forums and a journal club exercise. Your ability to apply research or evaluation methods and key considerations will be assessed in your final project where you will write a proposal for a study.

All work will be evaluated on an individual basis with the exception of the final project which you can choose to do in pairs. In these cases, group members will share the same grade. Your final grade will be calculated as follows:

Components and Weights

<i>Assignment</i>	<i>Grade allocation</i>	<i>Deadline</i>
Participation in online discussion forums related to the weekly topics	15%	Ongoing
Proposal for a literature review	15%	Week 5
Journal Club	20%	Sign-up for week 4-10; due week 11
<i>Final project:</i>		
Proposal	10%	Week 8
Final written paper	25%	Week 13
Presentation	15%	During Week 13

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:

LETTER GRADE	PERCENT	POINTS
A+	90-100	12
A	85-89	11
A-	80-84	10
B+	77-79	9
B	73-76	8
B-	70-72	7
F	00-69	0

Course Deliverables

Participation in online discussion forums (15%): The format of the discussions will be flexible this year. We will engage in a messenger-type discussion on MS teams each week related to the topic of the week. I will prepopulate these with some guiding questions or activities, which are included in the weekly outlines, but you are **STRONGLY** encouraged to include your own. Ideally, we will all check-in and engage with the discussion at least twice per week. After the first week, as a group we will decide 1. If we would like to have synchronous online meetings to discuss the content, 2. How frequently we hold these real-time interactions, and 3. What day/time works best for the group. Postings and contributions will be evaluated based on quality rather than quantity according to the provided rubric. These postings are separate from the journal club activity. I used MS Teams for the course last year and it was more engaging than the Avenue to Learn discussion platform. Though we will be

discussing the learnings, the space is designed to be encouraging, a little informal, and engaging. We will need to work together to meet these goals. Rather than limit engagement for the one week, we can contribute to a particular module over the course of 2 weeks to accommodate varying work schedules (meaning that I won't cut off discussion after 1 week but keep each unit open; you are expected to participate at least 1/week however). More details will be provided in Teams. In some ways the discussion is an online book club where we discuss the readings.

Literature review proposal (15%): Consider a topic for your future scholarly paper or thesis. Devise a research question, select search terms and databases, write a short background, place the context/importance of the topic within eHealth, and give a skeletal structure for the future paper. For eHealth students, this can form the basis of your scholarly paper proposal or thesis.

Journal Club (20%): This activity is designed to enhance your critical appraisal skills and to become more familiar with different research methods and approaches. The class will be divided into 1-3 groups (depending on enrollment). Within each group, you will each sign up for a given week. You will select a relevant, peer-reviewed, eHealth-focused research article, provide a summary and critical appraisal of the article (re: methods/interpretation), and place the article in the context of eHealth. You will pose a few questions for your group and then facilitate a discussion. Classmates are expected to engage at least once during the week (this expectation is beyond the postings in the general discussion forums). The journal club author will then submit to me their posting and a summary of the discussion that took place.

Groups have options for managing the Journal Club assignment and associated activities. The decision of each group should be shared with the instructor. You should establish your schedule collectively. For example, if you choose option 3, then the article summary and questions should be posted by Saturday to allow for 'discussion' over the course of the week (Monday-Saturday at midnight); facilitators will be expected to check in multiple times during that week).

- Your group could choose to meet each week to synchronously discuss the article of the week.
- Your group could plan a 'retreat' of a ½ day or whatever other configuration works for all of you where you meet online, synchronously, to discuss multiple articles at once.
- You could conduct your journal club asynchronously, using postings in your Teams channel, much like our asynchronous weekly discussions.

Final project

For the final project, you will prepare a proposal for a research study or an evaluation of an eHealth intervention/product. Details of the project will be available in teams. This can be done solo or in pairs. Instructions and rubric will be posted in Teams/

Proposal for final paper (10%)

Final paper (25%)

Final presentation (15%)

General assignment guidelines: Written assignments should be submitted by 11:59 pm on the due date via Teams assignments submission. All assignments should be double spaced with ¾" margins. The APA or MLA citation style should be used for referencing. For referencing, consistency is key. Page limits do not include references, figures, or tables (these can be incorporated or provided as appendices as needed).

Microsoft Teams

We will be using Microsoft Teams for everything in this course

- Course content
- Assignment instructions and drop-boxes
- Assignment feedback
- Weekly discussions
- Any synchronous sessions

In Teams, in the 'Tech support' channel, there is a starting document to help orient you to the app. The 'posts' tab functions much like Facebook Messenger and is a great place to engage. There will be channels for each unit, assignments, polls, and for other questions/concerns/feedback.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TAs directly via email or Teams 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

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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at:

www.mcmaster.ca/academicintegrity

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

AUTHENTICITY/PLAGIARISM DETECTION

This course 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. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, 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.

ON-LINE 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 [Code of Student Rights & Responsibilities](#) (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.

MISSED ACADEMIC WORK

Missed Examinations / Tests / Class Participation

Students can apply for relief of missed term work if they have or are going to miss an evaluated portion of their course. Please contact the Program Administrator for more information.

Students can request relief for:

- Health-related or extenuating circumstances
- Work-related commitments (for part-time students only)
- Representing the University at an academic or varsity event
- Religious obligations
- Conflicts between two (or more) overlapping scheduled mid-term exams

Requesting Relief for Missed Term Work

If a portion of your term work is missed for legitimate reasons, as determined by Program Administrator, the weight for that missed term work will be redistributed across the other assignments and exams of the course. For missed work, forms and supporting documentation must be submitted to Program Administrator within five (5) business days of missing the work or mid-term exam.

Requesting Relief for Term Work in Advance

If evaluated term work is missed, students can request for relief/special arrangement in advance. Supporting documentation must be submitted to the Program Administrator at least ten (10) working days before the mid-term exam, test, assignment, etc.

The program administrator will provide the required forms to the student. Please complete the Petition for Missed Term Work form in addition to:

- For medical reasons the McMaster University Student Health Certificate and for extenuating circumstances, appropriate documentation is required.
- Due to a business commitment (for part-time students only), have your immediate supervisor provide you with a letter on company letterhead stating that you are unable to be present due to a specific job commitment.
- For varsity reasons, have a designated University official provide a letter on university letterhead; or
- For religious reasons, have your religious leader provide a letter stating that you are unable to be present due to a religious obligation.

In all cases, the request must be handled by The Program Administrator. The appropriate distribution of re-weighting term work will be determined by the instructor. Submitting a request does not guarantee approval or special consideration.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

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>

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 [RISO](#) 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 or 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.

POTENTIAL MODIFICATION 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

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>

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.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your registration and continuous participation (e.g. on TEAMS, A2L, in the classroom, etc.) to the various learning activities of eHealth 724 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

Session	Week of:	Topic	Assignments/Activities
Unit 1	Jan 10	Introduction to research and evaluation in eHealth; course overview	Introduction in discussion forum Research vs evaluation exercise
Unit 2	Jan 17	Questions and Populations: What and who we are studying	PICO
Unit 3	Jan 24	Reviews: Types of literature reviews and their methods	MeSH terms for searching; Enrol in Cochrane course: Understanding Evidence-Based Healthcare

Session	Week of:	Topic	Assignments/Activities
Unit 4	Jan 31	Controlled/experimental trials and observational studies	CASP critical appraisal CONSORT eHealth checklist
Unit 5	Feb 7	Qualitative research and mixed methods	CASP critical appraisal (qualitative) Literature review proposal: Friday Feb 11
Unit 6	Feb 14	Ethics, privacy, and confidentiality	Tri-Council certificate <i>Journal Club</i>
Unit 7	Feb 21	eHealth evaluation frameworks, usability	<i>Journal Club</i>
Unit 8	Feb 28	Measurement issues related to eHealth	<i>Journal Club</i> Final project proposal: Friday Mar 4
Unit 9	Mar 7	Knowledge translation/Implementation Science	Barwick KT planning tool <i>Journal Club.</i>
Unit 10	Mar 14	Quality improvement in healthcare using eHealth tools	Process map <i>Journal Club</i>
Unit 11	Mar 21	Data quality and Data analytics	All Journal Club assignments due by Mar 25
Unit 12	Mar 28	Summary -review (open for questions, no new content)	Final project work
Unit 13	Apr 4	(synchronous presentations or videos-date/time TBD) Final presentations	Presentations: TBD Final paper: Friday Apr 8