

Welcome to Health Research Methods!



What is this course all about?

This course will introduce you to the fundamentals of various methods and designs in health sciences research. You are probably asking yourself, why do I have to take it and why should I care? Our health, and even our lives, depend on good quality evidence on which to base important decisions about our health and our health care systems. No matter which health-related field you end up in, the practices, policies, and decisions will be based on research! So, understanding how to interpret and use it is important. You will learn key concepts in basic, clinical, epidemiological, qualitative, and synthesis study designs. Formulating research questions and hypotheses, collecting and analyzing data, reporting research and ethical considerations will all be addressed. You will put these concepts into practice in workshops outside of class where you will learn to critically evaluate research.

What will I take away from this course?

These are called learning outcomes. By the end of this course, you will be able to:

1. Explain the opportunities, limitations, and disparities in health research;
2. Describe elements of the health research process;
3. Identify and evaluate research designs, methods, and validity in health research studies;
4. Interpret data from health research;
5. Generate research questions and hypotheses from current evidence;
6. Construct evidence-based scientific arguments

Who will be teaching us?

Your teaching team is committed to fostering a safe, equitable and inclusive learning environment for all. As such, we expect that everyone will be treated with respect during all interactions, in-person and online. Please reach out to us with ways that we can help facilitate your learning or if you have any concerns at any time.

Course Instructor: Ms. Tomoko McGaughey (she/her)

Call me Tomoko!

Academic Interests: I love everything to do with public health and understanding how our environment affects us on a daily basis.

Your TAs are also a great support and resource. Information about how to reach them can be found on our Brightspace page.

How do I ask questions or get help?

These are called “office hours” but I prefer “student hours”, as it’s your time! Wherever and whenever is best for you! Come and meet with any member of our teaching team. Discuss with your workshop TA what is the best way to get a hold of them, but for me, shoot me an email anytime and we will organize something.

Where and when will we be meeting?

Theory (“lecture”) Time:**Theory Classroom:**

This course is being delivered in-person. All course materials, learning activities and assessments can be found on our Brightspace course page.

Workshops

Every student is registered for a 2hr weekly workshop – you will be attending about every other week. These workshops will have you practicing what we learn in class. They are **mandatory**, as you will be working on several course assessments with the support of your peers and TA. Please note you must attend the section you are registered for so no switching please!

What do I need for this course?

***There are no additional costs associated with this course.**

Suggested Textbooks (Available on reserve in [ARES](#)):

Textbooks are NOT mandatory but highly recommended. Here are some suggestions in order of relevance:

1. Brink, H, vanderWalt, C & van Rensburg, G (2020) Fundamentals of Research Methodology for Healthcare Professionals, 4th Ed. *JUTA*.
2. Jacobsen, K.H. (2021). Introduction to Health Research Methods: A Practical Guide. Jones & Bartlett Learning, LLC. Burlington, MA.
3. Bassil, K. & Zabkiewicz, D. (2014). Health Research Methods: A Canadian Perspective. Oxford University Press. Don Mills, Ontario, Canada.

Technology Checklist:

- ☐ An internet-enabled device for workshop activities (laptop/tablet, phone)
- ☐ Access to Carleton’s internet & Brightspace (aka BS!)
- ☐ Access to Perusall

There are options for students who do not have access to these resources. Options include [financial aid from Carleton](#), less expensive options for technology (Best Buy refurbished products, Kijiji), & single workspaces available for student use on campus. Don’t be shy to reach out if you would like help accessing any course resource.

Do I have additional help to succeed in this course?**Academic Supports for you!**

[Center for Academic Support](#)

[Peer Assisted Study Sessions \(PASS\)](#)

[Science Student Success Centre \(SSSC\)](#)

How will I be assessed in this Course?

Research on learning strongly suggests that the most important factor in learning is doing the work of reading, writing, recalling, practicing, synthesizing, and analyzing. Learning happens best when people actively engage with material on a consistent basis, and that is why we have high standards in this course with lots of built-in practice and activities. We are confident that, with appropriate effort and engagement in your learning, you all can meet those standards.

Course Assessments

ASSIGNMENT	VALUE	LOCATION	DATES
5 HOMEWORK ACTIVITIES	10%	Brightspace	Throughout
2 MID-TERMS*	30%	During class	Oct 22 Nov 26
4 JOURNAL CLUB ACTIVITIES	20%	In workshop	Throughout
FINAL EXAM	35%	TBD	Final Exam period

***1 midterm and the final exam must be passed to pass the course.**

Additional descriptions, outlines and rubrics can be found on Brightspace.

Homework Activities (10%)

There are five small assignments to complete as homework to help prepare you for content being covered in class. These will be completion marks such that if you complete them by their due date, you will receive full credit. If you complete the task late you will receive 1% credit.

	HOMEWORK	VALUE	ESTIMATED TIME TO COMPLETE	DUE DATE (11:59 PM)
1	Plagiarism certificate	2%	5-8 hrs	Sep 22
2	Knowledge synthesis video	2%	2-3 hrs	Oct 27
3	Indigenous learning bundle (1)	2%	1-2 hrs	Oct 29
4	Searching databases review videos	2%	1-2 hrs	Dec 1
5	Indigenous learning bundle (2)	2%	1-2 hrs	Dec 3

Mid-term and Final Exam

You will have 90 minutes to complete the midterms, and this will be completed in-person. The midterms will consist of multiple choice, fill-in-the-blank, and short answer questions.

Materials allowed: You will be allowed to use a support sheet, **4.25 inch x 5.5 inch (half a standard piece of paper) two-sided hand-written/drawn** (unless PMC accommodations required) paper to refer to during the test. NO cutting and pasting any text from any sources. You may create your sheet using a tablet if it's hand-written/drawn and is not shrunk in size when printed to fit in more text.

Flexible grading: The weighting of the grades for the test will be shifted around (as sometimes we are not at our best on test day) such that the test you do best on will be weighed the most, so it will be divided as follows: **20% for your best test, then 10% for your next best.**

Exams	Topics	Weight	Test date
1	Sept 4 to Oct 8	Lowest test grade = 10%	Oct 22
2	Oct 13 to Nov 19	Highest = 20%	Nov 26

***1 midterm and the final exam must be passed to pass the course**

The final exam will take place during the final exam period. More details will be provided closer to the exam date.

Workshop Activities (20%)

Four journal club activities will be held with the support of a TA. You will be completing worksheets that have you practicing key concepts covered in class and that help you prepare for the exams. The workshops will be in the form of journal clubs in which you will have to critically read a research study prior to your workshop using the social annotation tool, [Perusall](#), and will come prepared to discuss and analyze the reading with your peers in workshop. You will review a journal article with guiding questions in small groups then complete individual worksheets. You will then receive feedback from the TA on both the group and individual worksheets. Grades will be assigned based on completion (Perusall and group worksheet) and for correctness (individual worksheet).

COURSE POLICIES

What if I want to use AI tools, like Chat-GPT, in this course?

In this course and for your assignments, it is essential that you learn to develop your own research skills such as critical thinking, reading, searching, evaluating and synthesizing skills. You will need these key skills to succeed in life, no matter where you end up or what area of health you may pursue. **Don't let generative AI take this away from you!** It can also be, if used properly, a great tool to help you learn. Please use AI tools to clarify concepts, to practice for the exams, and to help you organize your thoughts with outlines. **Just be sure to check that the outputs are correct as it will often fabricate wrong or non-existent things!**

Acceptable uses in this course are those which assist and enhance in your learning, not replace learning. Some acceptable uses include:

- Grammar and spell checking (e.g., Grammarly, Microsoft Word Editor).
- Basic formatting and design suggestions (e.g., Microsoft Word's formatting tools, PowerPoint Design editor).
- Organizing outlines (e.g., using AI to structure a presentation flow, using Microsoft Word's Outline View with AI suggestions).
- Providing definitions or explanations of complex concepts (e.g., using AI to explain a difficult theory, e.g., using Microsoft Word's Researcher tool to find relevant information).
- Creating practice questions (e.g. asking Chat-GPT to create multiple-choice questions or give practice case studies).
- Interactive learning (e.g., AI driven assessment of student skill with follow up recommendation of customized learning plan in alignment with course level learning outcomes).
- Helping you create a study plan!

Why have I adopted this policy? This policy supports the use of AI as a supplementary tool, helping you better understand the course concepts and structure your work while emphasizing the importance of transparency and personal engagement with the content. AI can be used for foundational support and can encourage you to critically assess and refine any AI-generated material. This approach will help you become more familiar with using AI as a tool for enhancing your learning and productivity.

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

What if my assignment is going to be late or missed?!

If you miss a task without a valid reason, the task is considered incomplete and thus the learning outcomes will not be accomplished and the course not passed. If you feel you have a valid reason for incomplete or missed work, please reach out to your instructor to make arrangements – I am here to help!

Carleton has also put into place a protocol for students to apply for [academic considerations](#) the event of missed work/exams due to unforeseen circumstances. Note that **filling out the form does not guarantee you will be accommodated – it is up to the instructor to decide.** Please consult the website for more details.

Am I allowed to post course materials on Sharing Websites?

Nope! ALL student or instructor materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Recording and sharing of the lecture in any format (e.g.: audio or video) and sharing course materials is not allowed.

UNIVERSITY POLICIES

In accordance with the Carleton University Undergraduate Calendar Regulations, the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A- = 80-84	B- = 70-72	C- = 60-62	D- = 50-52
F = <50			

WDN = Withdrawn from the course; ABS = Student absent from final exam; DEF = Deferred
 FND = (Failed, no Deferred) = student could not pass even with 100% on final exam

Academic Stuff

Carleton University is committed to providing access to the educational experience in order to promote academic accessibility for all individuals.

Academic accommodation refers to educational practices, systems and support mechanisms designed to accommodate diversity and difference. The purpose of accommodation is to enable students to perform the essential requirements of their academic programs. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the University. More information can be found at the [link](#).

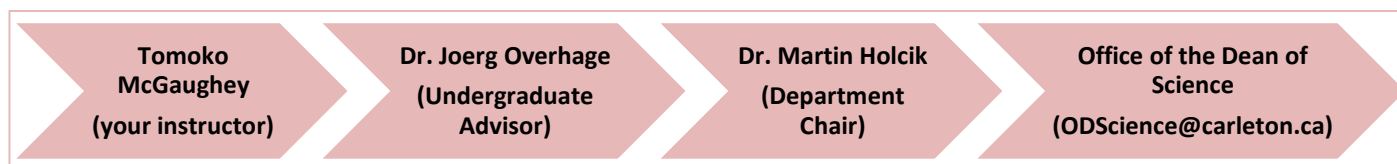
University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the [university's website](#).

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).

Student Concerns

If a concern arises regarding this course, your first point of contact to discuss your concern is me: TomokoMcGaughey@cunet.carleton.ca or drop in during student hours. If I am unable to address your concern, follow the flow-chart below to determine your next point of contact:



Academic Integrity

Academic misconduct undermines the values of honesty, trust, respect, fairness, and responsibility that we expect in this class. Carleton University provides supports such as academic integrity workshops to ensure, as far as possible, that all students understand the norms and standards of academic integrity that we expect you to uphold. Your teaching team has a responsibility to ensure that their application of the Academic Integrity Policy upholds the university's collective commitments to fairness, equity, and integrity.

Examples of actions that do not adhere to Carleton's Academic Integrity Policy include:

- Plagiarism
- Accessing unauthorized sites for assignments or tests
- Unauthorized collaboration on assignment and exams
- Unauthorized use of generative artificial intelligence, such as Chat-GPT.

Details about processes involving academic integrity can be found on [the Faculty of Science Academic Integrity website](#). Students are expected to familiarize themselves with and follow the Carleton University [Student Academic Integrity Policy](#). The Policy is strictly enforced and is binding on all students.

Tentative Topics and Schedule (subject to change)

Date	Topics	Workshop & Homework (info on Brightspace)
Sept 10	Intro to the Course - What is this course all about? - Where can I find support? - What will I learn in this course?	Workshop: - No Workshop Homework: - Getting to know you survey on BS
Sept 15	Intro to Research Methods - What is Health research and why is it important? - How can we use research to make evidence-based arguments and decisions in health? - What are the different types of health research?	Workshop: - Team formation - Journal club outline & rubric - Intro to Perusall
Sept 17	Research Questions & Hypotheses - What is the process of research? - How do researchers choose a topic and find gaps in knowledge? - How do researchers formulate research questions, hypotheses, and aims?	Homework: - Complete plagiarism certificate as homework (~5 hrs)– due Sept 22nd
Sept 22	Key concepts in Quantitative Designs - How is the scientific method an approach to research? - What are the key design features and goals of quantitative designs? - What are the different quantitative designs? - What is the difference between causality, association, correlation?	Workshop: - No Workshop Homework: - Perusall – Basic research article reading and annotations
Sept 24	Basic Biomedical research - What is basic research? - Why and when is basic research the appropriate choice of study? - What are the key design features of basic biomedical research?	
Sept 29	Clinical Research - What is clinical research? - What are the key design features of experimental studies? - How and why are clinical trials conducted?	Workshop: - Journal Club 1 – Basic research worksheet in workshop Homework: - No homework
Oct 1	Clinical Research - What are the key design features of case studies and case series? - What are the outcomes measured in clinical research? - What are the limitations and potential biases of clinical studies?	

Date	Topics	Workshop & Homework (info on Brightspace)
Oct 6	Epidemiological/Population Research - What is epidemiological research? - What are the key design features of epidemiological research?	Workshop: - No Workshop Homework: - Perusall - Experimental research article reading and annotations
Oct 8	Epidemiological/Population Research - What are the outcomes measured in epi research? - What are the limitations and biases in different epi research - How do we tell apart the different quantitative designs?	
Oct 13	Qualitative Research - What are the key design features of qualitative research? - What does qualitative research measure? - How do we collect qualitative data?	Workshop: - Journal Club 2 –Clinical Research worksheet in workshop Homework: - Study for exam
Oct 15	Qualitative & Mixed methods Research - How do we analyze qualitative data? - What is participatory-based research? - What is mixed methods research - What are the key design features of mixed methods?	
Oct 20	*Midterm review	Workshop: - No workshop Homework: - No homework
Oct 22	*Mid-term exam Up to the October 8th class	
Oct 26-30 Fall Break!		NO Workshop or class. Homework: - Synthesis research video & quizzes (~1hr) – due Oct 27th - Indigenous learning bundle on BS (~3 hrs) – due Oct 29th - Perusall – Qualitative research article reading and annotations
Nov 3	Knowledge Synthesis Research - What is synthesis research? - What are the key design features of this type of research? - How do we analyze and interpret synthesis research? - How do we asses risk of bias in these studies?	Workshop: Journal Club 3 – Qualitative Research worksheets in workshop

Date	Topics	Workshop & Homework (info on Brightspace)
Nov 5	Research Paradigms - How do our beliefs and assumptions about the world impact our approaches to research? - What are the paradigms that underlie different types of health research? - What are Indigenous approaches to research?	Homework: No homework
Nov 10	Population Sampling - How do we decide who participates in our research? - What are inclusion and exclusion criteria? - Why is sample size important?	Workshop: No Workshop Homework:
Nov 12	Data Collection - How do researchers collect quality data? - What are types of data collected in health research? - How are quantitative vs qualitative data are collected?	Perusall – Synthesis Research reading and annotations
Nov 17	Data Analysis - What are common measures in health research? - How are health data analyzed and interpreted? - How are research findings depicted and communicated?	Workshop: Journal Club 4 – Synthesis Research worksheet in workshop
Nov 19	Data Quality - What threatens the quality, validity, and trustworthiness of research and how can we try to control these? - What biases could be introduced into research and how might we account for these? - How is data quality assessed in quantitative vs qualitative research?	Homework: No homework
Nov 24	*Midterm review	Workshop: No Workshop Homework:
Nov 26	*Mid-term exam Up to the November 19th class	Searching the literature refresher videos & quizzes on BS (~2 hrs) due Dec 1st
Dec 1	Using Health Research - How do we find and use health research? - How do we cite and paraphrase research? - How can we use research to make evidence-based arguments and decisions in health? - Identifying the different types of health research, revisited.	Workshop: - No Workshop Homework: - Indigenous learning bundle on BS (~3 hrs) – due Dec 3rd

Date	Topics	Workshop & Homework (info on Brightspace)
Dec 3	Principles of Ethical Research • What is ethical research on humans? • How do we uphold ethical research?	
Dec 8	Principles of Ethical Research • What is ethical research on animals? • How do we conduct honest and responsible research? • How might we use AI to facilitate research? Guest speaker Heather MacDonald (MacODrum Library)	Workshop: • Preparing for the final exam Homework: • Study for Final Exam
Dec 10	Final exam preparation • Review questions	
TBD	Final Exam • Scheduled during exam week • Includes all course content	