# POTH 401: RESEARCH METHODS

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| **Credits** | 3 |
| **Instructor** | Ana Maria Moga, PT, MSc., PhD (c.)<br>Office: Davis House, B6<br>ana.moga@mcgill.ca |
| **Teaching Assistant** | TBD |
| **Virtual office hours** | Tuesday and Thursday 4:00-5:00 pm or *upon request* |
| **Communication plan** | Office hours or via email |
| **Course schedule** | Tuesdays and Thursday, 2:35-3:55 pm |
| **Lectures given in** | Strathcona Anatomy & Dentistry 1/12 (SADB 1/12) |
| **Pre-requisites(s)** | Successful completion of courses from previous years |

## Course Objective

The purpose of this course is to introduce the fundamental principles of research design, expand knowledge and skills related to health and rehabilitation research, and critically appraise scientific evidence.

## Course Description

The course encompasses three key parts: the first part introduces concepts and terminology central to health and rehabilitation research; the second part introduces various research designs; and the last part covers specialized research areas pertinent to health and rehabilitation research. Subject experts are invited for particular topics as indicated in the course schedule.

## Course Structure

The course consists of 2 sessions of 1.5 hours per week for 15 weeks (lectures, interactive workshops or self-directed sessions as appropriate). The course starts with critiquing and formulating research questions and identifying measurement strategies for answering such questions. A key focus is on identifying and eliminating sources of bias in research design. Following the learning of these generic research concepts, specific research designs are presented and critiqued every lecture. Students will be engaged in critical appraisal assignments and interactive sessions to facilitate the application of these theoretical concepts/knowledge to rehabilitation research. In the final section of the course, in

addition to the selected research topics presented by various faculty experts, structured seminars will also be included to allow students groups to present and discuss their critical analysis of a particular research article. During these seminars, a question/answer period will be led by assigned groups of students that rotate weekly. A more detailed course schedule is posted on myCourses at the start of term. Students are encouraged to consult myCourses regularly for announcements, course updates and other pertinent information. **Polling will be used in this course to enhance engagement and increase interactivity.**

**Remote Delivery**

The remote learning context presents new challenges for all involved. We acknowledge the challenges that students may be experiencing due to the pandemic and are committed to doing our best to provide a supportive learning environment and to foster student engagement. Please check these resources to ensure your academic success: Student-specific Guidelines for Remote Teaching and Learning

**Instructional Method**

This course will include a combination of primarily in-person lectures and some online lectures. The online component includes fixed activities (students participate together online (via Zoom) at the same time. Students will be asked to read the preparatory reading material and listen to recorded lectures (when applicable) or attend lectures. For Zoom tutorials, please see McGill's Remote Learning Resources.

**A web-based polling system called Slido, may be used in this course to enhance student engagement and** interaction. This live-polling system allows the instructor to ask questions, and students answer from a personal device (smartphone, tablet, or laptop).

Students should come to the class session with their devices charged and connected to the Internet. Instructors may use the polling feature in Zoom or a new tool called Slido. Note that Turning Point is no longer supported.

- Learn more about Slido by watching the video tutorials available in the Teaching & Learning KB
- To maintain a safe and respectful classroom environment, please ensure that any **polling responses you submit are appropriate and relevant to the question asked**. Please note that unless the poll is labelled as anonymous, your responses are identifiable to the instructor. Please see the Code of Student Conduct and Disciplinary Procedures

**Expectations for Student Participation**

Students are expected to listen to all recorded lectures, if applicable, or attend in-person lectures, when possible, and read the preparatory reading material posted on MyCourses prior to class. During lectures/activities/workshops students are expected to participate by commenting or asking questions via chat or audio. For some of the sessions, small group discussions (breakout rooms on zoom, when online) will be created and students are expected to attend and participate.

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**Recordings of Sessions**

When a lecture is given online, you will be notified through a 'pop-up' box in Zoom if a lecture or portion of a class is being recorded. By remaining in sessions that are recorded, you agree to the recording, and you understand that your image, voice, and name may be disclosed to classmates. You also understand that recordings will be made available in myCourses to students registered in the course. Additional information, tutorials or technical support can be obtained through McGill's Remote Learning Resources: https://www.mcgill.ca/tls/students/remote-learning-resources and the Guidelines on Remote Teaching and Learning https://www.mcgill.ca/tls/instructors/class-disruption/strategies/guidelines-remote.

**Student Learning Outcomes**

This course will cover essential competencies and milestones related to the domains of scholarship and collaboration. Upon completion of this course, the student will be able to:

| Learning objectives | **PT-related professional milestones *** | **OT-related professional roles **** |
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| Identify the components and formulate clinical and research questions related to rehabilitation. | 6.2.2 | Scholarly practitioner |
| Access reliable sources of information. | 6.2.3 | Scholarly practitioner |
| Carry out critical appraisal of research articles, and formulate a summary of appraisal findings. | 6.2.4 | Scholarly practitioner |
| Use appropriate terminology for describing and classifying study variables and outcome measures. | 6.2.6 | Scholarly practitioner |
| Describe the key features, strengths, weaknesses, and sources of bias of various experimental and observational study designs (cross sectional studies and surveys, case-control, cohort, randomized control trial, single subject, cross-over, and quasi-experimental). | 6.2.6 | Scholarly practitioner |
| Identify the steps and methods of a systematic review and interpret the basic findings of a systematic review. | 6.2.6 | Scholarly practitioner |
| Understand common approaches and methods of qualitative research. | 6.2.6 | Scholarly practitioner |
| Apply principles of knowledge translation to clinical examples, and identify common barriers to knowledge translation. | 6.2.6 | Scholarly practitioner |
| Understand and implement the key elements and processes in research ethics. | 6.2.1 | Scholarly practitioner |

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| Describe the major types of economic and cost-effectiveness analyses, and calculate indices that reflect the benefits of health interventions. | 6.2.6 | Scholarly practitioner |
| Develop skills and confidence in presenting published primary scientific research to an audience of your peers, including the ability to ask and answer questions. | 6.5.2 | Scholarly practitioner |
| Work collaboratively in intra and/or inter-professional groups. | 3.2.4; 3.25; 3.3.1; 3.3.3; 3.3.4 | Collaborator |

*For description of each numbered milestone refer to*
**Competency Profile PT in Canada* https://physiotherapy.ca/sites/default/files/competency_profile_final_en.pdf
*** Profile OT in Canada* https://www.caot.ca/document/3653/2012otprofile.pdf

**Required Course Materials**

- **Required text:** Rehabilitation Research. 4th ed. Carter, R.E., Lubinsky J., Domholdt E.Elsevier Saunders; St. Louis, Missouri, 2011.
- ISOQOL Dictionary of Quality of Life and Health Outcomes Measurements. 1st ed. Mayo, N. ISOQOL, 2016.
- **Additional readings:** Additional preparatory reading for each class will be posted on MyCourses. Students are strongly encouraged to read the assigned readings prior to class and be prepared for discussions and activities.
- **© Instructor-generated course materials** (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

**Course Content** Please refer to the course schedule on MyCourses.

**Student Assignment and Evaluation**

| Assignment/Evaluation | Weight | Milestones Assessed |
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| Assignment 1 | 20% | 6.2.2 |
| Midterm exam | 30% | 6.1.1; 6.2.2; 6.2.6 |
| Assignment 2 | 5% | 6.2.3 |
| Group Oral Presentation | 10% | 6.5.2; 3.2.4; 3.25; 3.3.1; 3.3.3; 3.3.4 3.3.4 |
| Final Paper | 25% | 6.2.4; 3.2.4; 3.25; 3.3.1; 3.3.3; 3.3.4 |
| Participation<br>Pre-class activity preparation | 5%<br>5% | 6.1.1; 6.2.2; 6.2.6 |

*In class participation graded by polling will be delayed until the end of the add/drop period.

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**Special Requirements for Course Completion and Program Continuation:** In order to pass the course, a grade of at least C+ (60%) must be obtained as a total course mark. Please refer to the appropriate section in the Health Sciences Calendar on University regulations regarding final and supplemental examinations. The student's mark will be affected by late submission of the assignment.

This course falls under the regulations concerning individual and group evaluation. Please refer to the section on marks in the Rules and Regulations for Student Evaluation and Promotion of the Physical and Occupational Therapy Course Guides.

**Plagiarism/Academic Integrity:** [Amended by Senate on April 17, 2013]: "McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures" (see McGill's guide to academic honesty for more information).

Since polling records may be used to compute a portion of course grades, **responding as someone other than yourself is considered an academic offense**. During class, possession of more than one response device or using the credentials of another student will be interpreted as intent to commit an academic offense. Please refer to McGill's policy on Academic Integrity and Code of Conduct (see http://www.mcgill.ca/deanofstudents/plagiarism and http://www.mcgill.ca/students/srr/honest )

*"L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires."* (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/)."

**Right to submit in English or French written work that is to be graded**: In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.

*"Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue)."*

**Artificial Intelligence:** Artificial Intelligence (AI) will likely impact many areas of society, including health care. When completing assignments, recall that AI can be useful for creative problem solving; however, AI has been shown to invent theoretically reasonable solutions not based on evidence. For example, always verify any reference AI suggests confirming the reference exists.

The course coordinator and instructors in POTH 401 recognize that Generative Artificial Intelligence is

now part of our academic landscape, with many interesting applications in teaching, learning and health care. For the POTH 401 course, however, we strongly encourage you to complete your assignments without using generative AI. The main reasons for this recommendation are outlined below.

- First, the POTH 401 assignments were designed to be completed without the use of generative AI, in order for you to achieve the learning outcomes of this course. These learning outcomes cover PT and OT competencies in the domains of Scholarship, Communication, and Collaboration. These competencies are required for your future practice and include critical appraisal of scientific literature, formulation of research objectives and writing professional and scientific communication documents. These skills must be learned and practiced, just like your clinical skills, to become proficient consumers of research.

- Next, the output from generative AI most likely will not correspond to the specific assignment requirements nor reflect the guidance you've received on your assignments from your instructors. As a result, you would need to check, edit, or re-work the text and references generated. This extra work may take longer than doing the work yourself and will not guarantee high-quality or accurate output. Generative AI frequently creates citations to articles that do not actually exist; therefore, it is not advised to use generative AI to search for articles.

- Finally, if a member of your group uses AI to inspire, verify or enhance the information in your assignments, you must be transparent and acknowledge that you have done so. Specifically:

    - Groups must submit, as an appendix with their assignments, any content produced by an artificial intelligence tool. You must also include the tool(s) used, the prompt used to generate the content, and how and where the content was incorporated into the submitted assignment.

    - Any content produced by an artificial intelligence tool must be cited appropriately. Many organizations that publish standard citation formats now provide information on citing generative AI (e.g., Modern Language Association: https://style.mla.org/citing-generative-ai/).

**Teaching and Learning Services:** Ethical use of generative AI: The development of generative AI has brought many ethical considerations that must be addressed. The 2018 Montreal Declaration for a Responsible Development of Artificial Intelligence and the 2021 UNESCO Recommendation on the Ethics of Artificial Intelligence provide a number of principles essential to adopting these new technologies. Both documents offer an excellent framework for what to consider when using these new technologies.

**Consequences of Not Completing Assignments as Requested:** An individual who does not complete a required assignment and does not have a university recognized reason for deferral would receive a 0 in that portion of the evaluation.

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**Assessment:** The University Student Assessment Policy exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students and instructors are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g. the timing of evaluation due dates and weighting of final examinations.

**Course evaluations**: End-of-course evaluations are one of the ways that McGill works towards maintaining and improving the quality of courses and the student's learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.

**Disability:** As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the Office for Students with Disabilities, 514-398-6009.

Additional policies governing academic issues which affect students can be found in the Academic Rights and Responsibilities

**In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.**

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