

POTH 612 APPLIED CLINICAL RESEARCH METHODS

Credits: 4

Pre-requisite: **(Recommended)** An introductory course in research methods and a course in intermediate level statistics or equivalent.

Lecturers: Sara Ahmed, Jill Boruff, André Bussi eres, Sabrina Figueiredo, Heather Lambert, Nancy Mayo, Barbara Mazer, Anita Menon, Anik Nolet, Judith Soicher

Course Description: This 13-week multi-module course is geared to intermediate learning levels to help students design and implement a research project and analyze results, according to the anticipated needs of their Master's research project.

Expanded Course Description: This course consists of several introductory lectures, followed by modules targeting different aspects of research design and implementation. The topics covered may include: quantitative research design and analysis, systematic reviews, qualitative methods and analysis, knowledge translation, measurement, research ethics, and writing of a research proposal. .

Students will be assigned by their Master's project supervisor to specific topics in research design (Module 2) and analysis (Module 5), according to the knowledge and skills required for their project. For the remaining modules, all students will participate in lectures and workshops on topics in Research Proposal Development (Module 3), Measurement (Module 4), and the Research Proposal (Wrap-up). Different modules may be offered each year.

Course Structure: There will be two 1.5-hour in-class sessions per week. Each module consists of 3-8 sessions.

There is also a 3-hour open lab or workshop on Friday morning. During the weeks indicated on the course schedule, this time period is used for a workshop. During the remaining weeks, students may use this time for research group meetings (with or without their supervisor), orientation to the research lab or setting, or to work on course assignments. It is expected that student groups meet with their supervisor by the second week of classes, in order to start project planning.

Learning Outcomes: On completion of this course, the student will have achieved the following objectives, according to the professional competencies for OT/PT.

Scholarly Practitioner / Scholarship:

1. Formulate objectives to answer clinical or research questions that will contribute to evidence-based practice.
2. Understand the principles and potential biases of observational and experimental study designs, and apply these principles to published research articles.
3. Carry out a comprehensive literature review on a topic pertaining to rehabilitation research or practice, using recognized databases and other credible resources.
4. Understand the principles and practical considerations related to scoping reviews and knowledge integration.
5. Apply the appropriate study design to answer a research question. Designs may include observational, experimental, quasi-experimental, systematic review, knowledge translation or qualitative studies.
6. Apply methods of quantitative or qualitative data analysis, using the appropriate statistical test or interpretative method based on the research question and type of data.
7. Understand ethical principles and procedures related to clinical research, and describe the ethical considerations specific to the Master's Project.
8. Apply measurement terminology, classification, and the selection of appropriate measures for clinical or research purposes.
9. Evaluate the practical aspects and metric properties of an outcome measure.
10. Develop and write a formal research proposal for the Master's Project, suitable for submission to a Research Ethics Board (if appropriate).

Communicator / Communication:

11. Prepare written documentation reflective of growing competence in both professional and scientific communication.
12. Understand and use relevant information technologies (e.g. databases and electronic journal databases).

Collaborator / Collaboration:

13. Work collaboratively in research teams, including other students and a faculty supervisor. Teams may also include a clinical supervisor, research assistant, or PhD student.

Course Content: Detailed content and specific learning objectives will be distributed at the beginning of each module. A brief synopsis of the content of each section of the course is presented below.

Module 1 - Introduction: Overview of the course content and schedule; overview of the Master's research project and its relationship with the course; overview of research principles; EndNote workshop.

Module 2 – Research Design: Lecture on scoping reviews and knowledge integration (all students). Each student then attends lectures on one of the following design topics:

Cross-sectional Surveys: Survey design, sampling, modes of administration (self-administered, mailed, telephone, in-person), reliability/validity, analysis; Quasi-experimental designs; Data presentation and interpretation.

Systematic Reviews: The systematic review process; strengths and limitations of the method; formulation of the review question; search for the literature evidence; quality assessment of studies; data extraction; report writing.

Qualitative Methods: Traditions and methodologies in qualitative research; designing a qualitative research question; sampling methods; designing data collection strategies; elements of trustworthiness, including triangulation.

Knowledge Translation (KT): Focuses on the gap between research evidence on "best practice" and actual clinical practice. Facilitators and barriers that influence the gap; effective and non-effective KT strategies; designing a KT intervention study; assessing the quality of clinical practice guidelines; examining the PERFECT and the EPIC tools that measure clinician readiness for change.

Module 3 - Proposal Development and Wrap-up: All students will apply the knowledge and skills learned in other modules to develop a research proposal for their Master's project. Module 3 includes a lecture on the research proposal, a writing workshop, and two workshops on the proposal with members of their supervisory committee, course instructors and liaison librarian.

Module 4 - Measurement: Review of research principles in context of measurement; classification of measures; selection of measures for research or clinical purposes; content development for measurement scales; metric properties (reliability, validity, responsiveness, interpretability); critical appraisal of articles reporting a measurement study.

Module 5 – Analysis: Each student attends lectures on one of the following analysis topics:

Quantitative Data Analysis: Types of numerical data; underlying construct of the test or measure used; uses of statistics; matching the analysis to the measurement scale of the key variables; interpreting numerical data in clinical rehabilitation studies; presenting the results in a clear and meaningful manner; the art and science of tables of results.

Qualitative Data Analysis: Analyzing data using thematic analysis techniques; developing a concept map based on findings; introduction to narrative analysis.

Required Text: The Evidence-Based Practitioner, available as an e-book at <http://mcgill.worldcat.org/oclc/972291423> from the "View ebook" link.

Each instructor will also provide students with a reading list containing articles and/or chapters specific to a module or lecture topic. Readings from the following textbooks may also be assigned:

Butler-Kisber, L. (2010). Qualitative Inquiry: Thematic, Narrative and Arts-Informed Perspectives, Sage Publications Ltd.

Portney, L.G. & Watkins, M.P. (2008). Foundations of Clinical Research: Applications to Practice. Pearson Prentice Hall. Also available as an e-book.

Copyright of course materials: Instructor generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) 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.

Student Evaluation and Mark Distribution: Evaluation of learning will be ongoing throughout the term and will include both formative and summative evaluations. Evaluations for Module 2 (Design) will be worth 30%, Module 4 (Measurement) worth 10%, and Module 5 (Analysis) worth 20% of the final course grade. The evaluation for Module 3 and the Wrap-up will be the Research Proposal assignment worth 40%.

Within each module, assignment guidelines and the evaluation breakdown will be provided by the instructor. Different evaluation methods will be used depending on the content and the number of students enrolled in the module. These methods may include a thematic paper, a critical appraisal of a research article, written in-class or take-home exams, group or individual presentations, and peer or self-reflective evaluation.

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](#).

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](#).

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.

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).

Dress Code: Students are expected to demonstrate professional behaviour and wear appropriate attire at all times, in accordance with clinical sites specific regulations.

Technology in Class: Your respectful attentive presence is expected, therefore while you are permitted to use your laptop in class, it is understood that you will not be using your laptop or cell phone for social purposes during class time (e.g. email, msn, sms, social media). Your cell phone should be on silent during class time and phone calls should only take place during the break or after class.

Disability: If you have a disability please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the [Office for Students with Disabilities](#) at 514-398-6009 before you do this.

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