

POTH 612 ADVANCED RESEARCH METHODS

Credits: 3

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

Lecturers: Sara Ahmed, Jill Boruff, Liliane Asseraf-Pasin, Skye Barbic, Nicol Korner-Bitensky, Heather Lambert, Nancy Mayo, Barbara Mazer, Patricia McKinley, Judith Soicher

Course Description: This individualized, multi-module course is geared to intermediate–advanced learning levels to help students design and implement research projects and analyze results according to the needs for their entry level Master’s project.

Expanded Course Description: This course is made up of several introductory lectures, followed by modules targeting different aspects of research design and execution. The topics covered include: cross sectional surveys, systematic reviews and meta analysis, qualitative designs and methods, knowledge translation, quantitative data analysis, qualitative analysis, ethics and measurement. Topics may also include experimental / laboratory methods in rehabilitation and experimental measurement, depending on instructor expertise and the specific group projects being carried out. The final module will focus on protocol development and aspects of implementation of the Master’s project.

Course Structure: The design, data analysis and measurement modules will be delivered in blocks, each consisting of 3-7 sessions. In the design module, one session will be devoted to a literature search workshop given by the liaison librarian. There will be two 1.5-hour in-class sessions per week. Different modules may be offered each year.

Students will be assigned to the most appropriate modules for their Master’s project. An ethics lecture and workshop, as well as the final Group Projects module, will be taken by all students. In the ethics workshop and Group Projects module, students will focus on the design and implementation of the specific Master’s project being carried out.

Learning Outcomes: On completion of this course the student will:

1. Formulate objectives to answer clinical or research questions that will contribute to evidence-based practice.
2. Understand the principles and potential bias 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 appropriate databases and other resources.
4. Understand and apply the appropriate study design to answer a research question. Designs may include systematic review, cross-sectional survey, knowledge translation or qualitative studies.
5. Plan and 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.
6. Understand and apply measurement terminology, classification, conceptual frameworks (e.g. ICF) and the selection of appropriate measures for clinical or research purposes.
7. Describe ethical issues related to clinical research.
8. Analyze and evaluate the practical aspects and metric properties of an outcome measure, through the process of critical appraisal; synthesize critical appraisal findings into recommendations for use of the measure.
9. Integrate aspects of design, analysis, ethics and measurement in order to write an abbreviated research proposal for the Master's Project.

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 module is presented below.

Cross-sectional surveys: Asking survey questions; designing successful surveys; survey sampling; survey modes (self-administered and mailed surveys; telephone and in person interviews); measuring survey reliability and validity; analysis of survey data.

Systematic Reviews and Meta Analysis: 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; meta analytic methods; report writing.

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Qualitative designs and methods: Traditions and methodologies in qualitative research; sampling methods; designing data collection strategies; trustworthiness; documentation of qualitative research.

Knowledge Translation (KT): This module focuses on the gap between research evidence on "best practice" and actual clinical practice. It includes a discussion of the facilitators and barriers that influence the gap; discusses effective and non-effective KT strategies that can be used in clinical settings to change practice; describes the "how to" when designing a KT intervention study; includes a description of how to assess the quality of clinical practice guidelines; and summarizes the newer tools such as the PERFECT and the EPIC that measure clinician readiness for change.

Quantitative Data Analysis: Types of numerical data; identifying the measurement scale of 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 casting tables.

Qualitative Analysis: Formulating qualitative interview questions; conducting a 20-minute interview; Analyzing data using the constant comparative method; developing a concept map based on findings; transcribing data and using N-Vivo software to code data; introduction to narrative analysis; exploring concepts of triangulation.

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; translation and cultural adaptation of scales; metric properties (reliability; validity, responsiveness, interpretability); critical appraisal of articles reporting a measurement study.

Group Projects: Module 4 is compulsory for all students. In this module, the students will be expected to develop the first complete draft of their entry level Master's project protocol along with accompanying consent forms and appendices where indicated. Students will work with members of their supervisory committee in conjunction with the course coordinators and liaison librarian to complete this module.

Required Texts: No text is required for this course. Each instructor will provide students with a reading list containing articles and/or chapters available online. Readings from the recommended texts may also be assigned.

Recommended Texts:

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

Portney, L.G. & Watkins, M.P. (2004). Foundations of Clinical Research: Applications to Practice. Appleton and Lange; Prentice Hall.

Student Evaluation: Evaluation of learning will be ongoing throughout the term following the completion of each module and will include both formative and summative evaluations. Each module will be equally weighted at 25%. Several evaluation methods will be used depending on the content of the module and number of students enrolled in the module. These may comprise a thematic paper, a critical appraisal of a methodological paper, written in-class or take home exams, group or individual presentations, and peer or self-reflective evaluation.

Mark Distribution: Specific evaluation breakdown will be provided on the first day of each module.

Plagiarism/Academic Integrity: "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 www.mcgill.ca/students/srr/honest/ for more information.)

"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.

“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).”

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 398-6009 before you do this.