



COURSE GUIDE

Graduate Studies in Rehabilitation Science

2022-23

Students preparing to register should consult the MINERVA Class Schedule for the most up-to-date list of courses available; courses may have been added, rescheduled or cancelled. Class Schedule lists courses by term and includes days, times, locations, and names of instructors.

To access MINERVA please log on to www.mcgill.ca, click on Current Students at the top of the page and then scroll down to the right hand side of the page and click on MINERVA. Login and then choose Class Schedule and proceed to look up the courses that you wish to take.

All research involving human subjects, including student projects conducted for thesis or course requirements, requires ethics review and approval before the research can begin. **Please consult the GPS web-page for guidelines and useful links at:** www.mcgill.ca/secretariat/policies, then click on Research in the middle of the page.

If you have a **disability**, please contact the instructor to arrange a time to discuss your situation. It is helpful if you contact the Office for Students with Disabilities at 514-398-6009 before meeting with the instructor. <https://mcgill.ca/osd/>

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/)."

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Statement regarding Copyright of instructor-generated course materials:

Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions, lecture recordings 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. This means that each of you can use it for your educational (and research) purposes, but you cannot allow others to use it, by putting it up on the Internet or by giving it or selling it to others who may also copy it and make it available. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

POTH-508: Plasticity in Rehabilitation

Number of credits: 3

Semester Offered: *Not Offered*

Course Coordinator: *TBA*

COURSE DESCRIPTION

What we know about how the nervous system repair and the underlying mechanisms by which plasticity takes place in the human is constantly evolving. Thanks to the recent advances in the field of medical imaging, there is now a growing body of evidence to describe these mechanisms in vivo from the fetus to the elderly.

Since brain plasticity is often an ultimate goal for many rehabilitation interventions, it is primordial that rehabilitation experts acquire an indebt understanding of the current level of knowledge in the field.

Specifically, this course will address: 1) the mechanisms underlying neural plasticity, 2) the interventions that are met to promote neural changes and 3) the state-of-the-art neuroimaging techniques used to reliably assess neuronal changes.

COURSE STRUCTURE

The course will use seminar and lectures involving guest experts as well as self-directed learning activities with group discussions and presentations to cover the course material. (13 sessions @ 3hrs).

COURSE OBJECTIVES / LEARNING OUTCOMES

On completion of this course, the student will be able to:

- Compare the key concepts of neuronal plasticity in human across lifespan.
- Evaluate the underlying neuronal mechanisms solicited by different interventions. 5.
- Contrast the strength and limitations of various neuroimaging techniques to evaluation neural plasticity.
- Explain the fundamental neuronal processes affected in presence of neurologic impairments.
- Design a rehabilitation intervention and its evaluation plan in the context a neurological impairment and plasticity.

COURSE EVALUATION

-In-class Participation (5%): At the end of each case presentation by a guest lecturer, students will be asked to complete a short "end of class activity" form (i.e.: muddiest points, lessons learned, etc.).

-Participation to final presentation (5%). Student will be expected to ask questions and provide thoughtful feedback to peers after their presentation.

-Assignment #1: 1-page critical appraisal of a study article relevant to the assessment of neural plasticity using neurophysiologic or neuroimaging techniques (15%).

-Assignment #2: 1-page critical appraisal of an intervention study met to induce neural plasticity (topic selected with instructor) + 5 minutes oral presentation (20%).

-Assignment #3 (Final): Design a study of neuroplasticity (maximum 5 pages (35%); 15 minutes oral presentation (20%)): 1-) Briefly describe the neuronal deficits within a specific pathology/problematic; 2-) Design an intervention to induce plasticity; 3-) Describe the measurement protocol to evaluate neuronal outcome; 4-) Discuss underlying plasticity mechanisms solicited (proven or hypothetically).



POTH-603: Directed Practicum

Number of credits: 3

Course Coordinator: Graduate Faculty

Semester Offered: *Fall/Winter*

Course Description/Topic Description

A tutorial with directed practical experience in a clinical setting related to the student's clinical specialization, including curriculum development, and emphasizing current thought in rehabilitation.

Objectives:

- Acquire extensive knowledge in the topic of interest.
- Critically appraise the literature and discuss the evidence underlying current practice in their chosen area of specialization.
- Demonstrate appropriate verbal and written communication skills in order to interact with patients, care-givers and other health care professionals.
- Synthesize the information for oral and written presentation.

Required materials to be submitted to Graduate Program Director for pre-approval at least one week prior to last day to add classes. A template is provided on the next page.

Method of Evaluation: *Specify how the practicum will be evaluated (practical component, written report or paper,) and the specific percentage attributed to each component.*



POTH 603 Directed Practicum - Template

Credits: 3

Prerequisites: None

Instructors: Name

Contact information: Instructors address, email address, telephone number

Course Description/Topic Description

A tutorial with directed practical experience in a clinical setting related to the student’s clinical specialization, including curriculum development, and emphasizing current thought in rehabilitation.

Specific Objectives

By the end of the course, the student will be able to: *(To modify according to the specific objectives of the practicum)*

- Critically appraise the literature and discuss the evidence underlying current practice in their chosen area of specialization,
- Apply knowledge of the area of specialization to the practicum situation,
- Demonstrate appropriate verbal and written communication skills for their practicum environment,
- Synthesize the evidence and practical experience for oral and written presentations.

Course Structure

The course structure will vary according to the practicum setting and supervisor. In general, the structure should include regularly scheduled, weekly or biweekly, meetings, a practical assessment, and a final report. The 12 week term may include distinct modules, for example; preparation and literature review (2 weeks), practical implementation (8 weeks), reflection and reporting (2 weeks). Alternatively the 12 week term may involve simultaneous or cycles of research, implementation, and assessment.

Indicate the course structure that will be followed for this practicum situation.

Method of Evaluation:

Specify how the practicum will be evaluated (practical component, written report or paper,) and the specific percentage attributed to each component.

	Item	% of final grade	Due Date
	Review of literature		
	Application of knowledge to practicum situation		
	Oral presentation(s)		
	Mid-Term		
	Final		
	Written reports		
	Mid-Term		
	Final		
	Weekly communications with supervisor		



POTH 609 Qualitative research in rehabilitation science

Number of credits: 3

Semester offered: *Fall*

Schedule: Tuesday, 10:35am-1:25pm

Room: Education Building 434 (3700 McTavish)

Course Coordinators:

Dr. Matthew Hunt matthew.hunt1@mcgill.ca

Dr. Raphael Lencucha raphael.lencucha@mcgill.ca

Eligible Graduate Students

Students in M.Sc.(thesis) and PhD in Rehabilitation Sciences will be required to register for this course. Other graduate students may request to register by contacting the course coordinators.

Course Description

This is a 3-credit course that provides an introduction to qualitative inquiry in rehabilitation sciences. Students will gain an understanding of prominent research paradigms, qualitative research methodologies, and qualitative research methods as they relate to research on topics pertaining to rehabilitation. This course will explore unique considerations for the conduct of rehabilitation sciences research such as adapted communication requirements and different methods to foster inclusion and participation in the research process for persons with disabilities. Integrated into this course will be an orientation to consider issues of equity, reflexivity and ethics, as well as to question assumptions that may implicitly inform rehabilitation research and rehabilitation care provision, such as ideas around 'normal functioning' and notions of 'independence'. Students will have the opportunity to practice selected techniques of data collection and analysis, and to develop a qualitative rehabilitation research protocol.

Upon completion of the course, students will have an appreciation for, and broad understanding of, the application of qualitative inquiry in rehabilitation research. The course will provide foundational knowledge in qualitative methods. However, additional methodological training may be required to enhance skills related to a specific research methodology (e.g., ethnography) and deepen methodological knowledge overall (e.g., advanced methods) for students planning to conduct a qualitative inquiry for their thesis or dissertation research.

The course will run in parallel with POTH-610, an introductory course for quantitative rehabilitation research, and connections will be made across the courses in aspects such as, considering scientific paradigms, formulating research questions, and designing mixed methods studies.

This course will begin with an introduction to the notion of a 'paradigm', a review of different paradigms, and the implications of these paradigms for how we think about the scientific process. Following the introduction to paradigms, most classes will introduce a methodology coupled with a corresponding method. For example, we will introduce the methodology of phenomenology, coupled with an overview of interview-based approaches to qualitative data collection. This format will encourage students to begin to develop rationales for pairing methodologies with specific methods. Along with the common qualitative methodologies, students will be introduced to arts and visual approaches to qualitative research. The final portion of the course will draw from earlier course content to work through research design, engagement and utilization of existing theory and research, as well as approaches to data

analysis to inform a coherent qualitative research protocol. Throughout the course, attention will be given to, and examples drawn from, qualitative research in the field of rehabilitation sciences research.

Specific Objectives

By the end of the course, the student should be able to:

- Articulate and actively interrogate different research paradigms
- Describe and analyze differences between major qualitative research methodologies
- Formulate research questions that are aligned with qualitative inquiry and coherent with the different paradigms and methodologies
- Identify and begin to apply relevant methods associated with qualitative approaches in relation to their own domain of inquiry
- Comprehend the paradigmatic and design elements that need to be considered in mixing research approaches and data sources
- Appraise qualitative research articles

Course structure

Students will complete assigned readings and conduct a ‘bridging activity’ prior to weekly class discussions. Bridging activities between each class discussion will allow students to engage more directly with ideas and practice techniques (e.g., coding research transcripts) related to qualitative research. Four of the bridging activities will be evaluated (as described below).

Method of Evaluation:

Assignment	Description	Weight	Due Date
Conduct an Interview	Student plans and carries out a short mock research interview on a topic related to health and/or rehabilitation. They submit a summary and reflective notes about the experience.	10%	Sept 27 th
Observe and Document	Student plans and carries out an observation in a public space, guided by a defined research question. They submit a summary and reflective notes.	10%	Oct 14 th
Analysis of Transcript	As a pair-group the students will analyze a portion of an interview transcript using an assigned approach to analysis.	10%	Nov 29 th
Article Review CJPB Guidelines	Student selects a qualitative research article and conducts a review based on the reviewer guidelines for the Canadian Journal of Public Health	10%	Nov 15 th

Oral Presentation	Develop a qualitative research question and chosen methodology <ul style="list-style-type: none">• 5 minute video submitted in advance• 10 minute Q&A per student• Students will be required to watch each video and generate 1 question	20%	Oct 15 th
Written Assignment	Design a qualitative research proposal that includes the following features: <ul style="list-style-type: none">• Background to the topic• Knowledge gap or justification for research project• Research question situated in chosen paradigm• Methodology consistent with research question and paradigm	40%	Dec 13 th



POTH-610: Research Methodology

Number of credits: 4

Semester offered: *Fall*

Course Coordinator: Dr. Nancy Mayo nancy.mayo@mcgill.ca

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Course Description: An advanced lecture and seminar course. The philosophy of scientific inquiry, principles of research design, and application of statistical techniques are discussed with special consideration given to research studies in healthcare and rehabilitation.

Objectives:

- Formulate a research question
- Identify the main sources of bias and evaluate their impact
- Identify the research strategies to answer research questions without bias
- Link statistical tests to the type of data collected
- Present research material orally, succinctly and appropriately
- Identify strengths and weaknesses in published research reports.

Required and/or Recommended Readings

Designing Clinical Research by SB Hulley, SR Cummings, WS Browner, and DG Grady (2006) Physical Rehabilitation Outcome Measures II, E Finch, D Brooks, P Stratford, N Mayo (2002)



POTH-614: Selected Topics in Rehabilitation Science

Number of credits: 3

Semester offered: *Fall*

Course Coordinator: Dr. Eva Kehayia

eva.kehayia@mcgill.ca

Course Description: This is a weekly lecture and seminar course taught primarily by the faculty in the School of Physical and Occupational Therapy. It is designed to provide a general background on Knowledge Synthesis, focusing specifically on Scoping and Systematic Reviews. Furthermore, it provides an overview of current research in selected areas of rehabilitation science.

Learning Outcomes

By the end of this course students will be able to:

- Describe the nature and purpose of knowledge syntheses in rehabilitation
- Describe the nature and purpose of systematic and scoping review methods
- Select an appropriate synthesis method for their chosen research project
- Conduct a preliminary literature review prior to conducting a formal synthesis
- Search, identify, read, critically appraise, present and discuss the findings of scientific articles
- Students will be able to describe the structure of the ICF and its application to research areas in the field of rehabilitation science
- Describe the research opportunities available within the School of Physical and Occupational Therapy at McGill, and in other institutions, including the McGill affiliated hospitals or rehabilitation institutions
- Identify and describe the Ethical principles guiding research

Course Design: The course is structured as a weekly two-hour session. This will be held on Wednesdays 2:30-4:30 p.m.

Readings: Copies of the articles that the student is to read before a given session will be provided by the faculty member responsible for the session. These readings will be e-mailed to the students at least one week prior to class. Students are expected to have read the assigned readings in advance and be prepared to discuss them.

Evaluation: This course will be evaluated through three assignments. These assignments will consist of:

- 1) Ethics Assignment: 30%
- 2) Critical evaluation of assigned papers: 35%
- 3) Formulation of a search question and background arguments: 35%

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."

Contact Information: Dr. Kehayia office is in Davis House Room 37 514-3985867 ext. 2527 or (450) 688-9550 ext. 634. Office hours will be scheduled by appointment

POTH-617 Rehabilitation Seminars 1 - Knowledge Synthesis Seminar

Number of credits: 0

Course Coordinator: Dr. Noémi Dahan-Oliel

Semester Offered: *Winter*

noemi.dahan@mcgill.ca

Course Description/Topic Description

This seminar course will cover relevant topics for graduate students interested in conducting a knowledge synthesis. Topic expertise will be provided at each of the seminars along with learning activities that seek to stimulate thought and conversation. These seminars will cover key steps and processes involved in conducting knowledge syntheses. The seminars will feature a mix of lectures, discussions, hands-on exercises, and group presentations that will build on content covered in POTH- 614-Selected Topics in Rehabilitation.

Students will be able to discuss their project and further develop their proposal. Advice and support is available in the following areas:

- Refining your review question and rationale
- Refining and conducting the search
- Adequately describing elements of your review methods (study selection, data collection, quality assessment, analysis plan)
- Considering your knowledge translation approach
- Preparing your proposal

Specific Objectives

By the end of the course, students should be able to plan and carry out a systematic or scoping review (or other knowledge synthesis of their choice); understand the appropriate methods for more complex analysis; interpret the results of a meta-analysis and accurately communicate the results.

Specifically, students will be able to:

- Formulate a knowledge synthesis question
- Provide a rationale for the review
- Select the corresponding type of knowledge synthesis (e.g. scoping, systematic, realist, etc.)
- Identify resources for published literature, grey literature and unpublished studies
- Utilize techniques for constructing comprehensive and reproducible searches
- Select eligibility criteria (inclusion/exclusion criteria)
- Extract data
- Identify, select and use appropriate methodological quality rating tools
- Identify, select and use techniques for data analysis
- Report findings
- Identify implications of the knowledge synthesis findings for various stakeholders
- Identify future research directions

Students will also have the opportunity to develop a complete proposal for their knowledge synthesis in their research fields.



Eligible Graduate Students

Students who have attended POTH-614 are strongly recommended to attend this course. This knowledge synthesis seminar series is intended for graduate students who want to have hands-on opportunity to conduct a knowledge synthesis on a research topic of their choice.

Course requirements

- Attendance at and participation in all seminars is mandatory. Students should plan to spend 5-10 total hours prior to each of the seminars to meet the course objectives for each of the sessions.
- For each of the seminars, it is strongly recommended that students come to class prepared with their protocol section for discussion and feedback.

Recommended readings

- Boland, A., Cherry, M. G., & Dickson, R. (Eds.). (2013). *Doing a Systematic Review: A Student's Guide*. Sage. Available in print from McGill Library (Life Sciences Reserves – McIntyre Medical Building – 3h Reserve loan).
- Article on scoping review reference
- Article on general knowledge synthesis reference (with intro to other types of reviews- realist, etc)
- Find specific articles/chapters for each topic and provide link

Method of Evaluation:

This course is a 0-credit course, and will be pass/fail. Attendance to all seminars is mandatory.



POTH-618: Topics in Rehabilitation

Number of credits: 3

Semester Offered: *Fall /Winter*

Course Coordinator: Graduate Faculty

Course Description: This is a directed reading course on a topic in rehabilitation science. The student will acquire extensive knowledge in the topic of interest and understand the strengths and limitations of the current body of work in the area. Please note that students must aim at working on a topic with wider scope than that of their thesis or research project.

Pre-Approval: Student must submit written request to Graduate Program Director in order to register. The instructor for this course must be a faculty member other than the student's supervisor. The course instructor must submit 1) course objectives, 2) outline of content to be reviewed, 3) reading list (required readings) and 4) method of evaluation to the Graduate Program Director for approval. Materials must be submitted **one month prior to the beginning of classes**. **A template is provided on the next page.**

Objectives:

- Acquire extensive knowledge in the topic of interest and understand the strengths and limitations of the current body of work in the area.
- Gain expertise in organizing and communicating information orally and in succinctly synthesized written reviews.

Method of Evaluation: Critical appraisals presented orally (50%), 1-2 written structured review(s) (may include a systematic review) of the topic area (50%).

Note: Students are encouraged to plan this course with the instructor at least one semester before intended enrolment



POTH 618 Topics in Rehabilitation - Template

Credits: 3
Prerequisites: None
Instructors: Name
Contact information: Instructors address, email address, telephone number

Course Description/Topic Description

This is a directed reading course on the topic of _.

Specific Objectives

By the end of the course, the student will be able to: *(To modify according to the specific objectives of the course)*

- acquire extensive knowledge about the following subtopics_.
- understand the strengths and limitations of the current body of work in the area.
- organizing and communicating information orally and in succinctly synthesized written reviews.

Outline of the content covered

Section 1 will cover ..., Section 2 will cover ... , Section 3 will cover ...

Course Structure

The course is comprised of regularly scheduled (weekly or biweekly) sessions with the instructor over the 12-week term. It will include discussions with the course instructor, and may also include visits to research centers/laboratories with other McGill Graduate Faculty. Students will be given (or could be asked to choose) required and recommended reading materials (approximately 6-9 hours per week), but will also be expected to supplement the assigned readings with additional pertinent reading materials on the topic of study. The student will be expected to synthesize the information, critically appraise the literature, and present the material orally to the instructor each week (or 2 weeks or month). **Indicate the structure that will be followed for this course.**

Method of Evaluation:

Specify how the course will be evaluated and the specific percentage attributed to each component.

	Item	% of final grade	Due Date
	Review of literature		
	Oral presentation(s)		
	Mid-Term		
	Final		
	Written reports		
	Mid-Term		
	Final		
	Weekly communications with supervisor		

Reading list (required readings)

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POTH 620 MEASUREMENT IN REHABILITATION 1

Credits: 3

Semester Offered: *Winter*

Prerequisite: None

Instructor: Richard Preuss pht PhD richard.preuss@mcgill.ca

Course Description

The course will provide a theoretical basis for quantitative measurement techniques commonly used for assessment, diagnosis, treatment and research in rehabilitation. The course will introduce approaches and instrumentation used to measure and evaluate biomechanical and physiological variables for quantitative analysis of human performance. Techniques for recording, processing and analysing digital signals will be introduced in the context of electrophysiological signals, kinetics and kinematics of human movement.

Specific Objectives

By the end of the course, the student should be able to:

- Explain the basic principles that allow the collection of quantitative data using electronic equipment frequently found in a research or clinical setting.
- Demonstrate why the acquisition, conditioning, processing, analysis and graphical presentation of electrical signals from sensors and transducers are useful and necessary.
- Analyze the assumptions and simplifications that exist in laboratory and clinical research due to the inherent limitations of the instrumentation and measurement techniques.
- Describe the use of sensors and transducers for biomedical measurements in laboratory and clinical settings.
- Design the theoretical and practical implementation of quantitative assessment procedures and analytical methods in a research project in clinical rehabilitation.
- Perform basic data manipulation and analysis using the Matlab programming platform.

Course Structure

For the Winter 2022 semester, lecture material will be delivered asynchronously using pre-recorded presentation videos uploaded to Stream. Links to each recording, and an outline of its content, will be posted on MyCourses. Students are responsible for covering specific topics each week, as outlined in the schedule posted on MyCourses. In addition, one 3-hour session will be held each week, with student having the option attending in person or joining the session via video conferencing (links for each session will be posted on MyCourses).

Required and recommended reading

Lecture notes, along with supplementary readings and material, will be made available on MyCourses.

Course Content

- Measurement Error
- Time, Frequency & A/D Conversion
- Signal, Noise & Filters
- Kinetics

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- Postural Sway
- Kinematics
- Continuous Phase Analysis
- Electromyography
- Inverse Dynamics

Methods of Evaluation

1. **Short Assignments:** Ten short assignments, based on the material and topics covered in class, using the Matlab programming platform.

Content: Specific guidelines, for each assignment, posted on MyCourses.

Value: 70% of the final grade (7% per assignment)

2. **Inverse Dynamics Assignment:** An assignment based on the inverse dynamics approach to approximating joint moments and forces, using the Matlab programming platform.

Content: Specific guidelines posted on MyCourses.

Value: 30% of the final grade

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Attendance: Students are required to attend all lectures and student project presentations.

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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). Your cell phone should be on silence 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 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.

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POTH- 628: An introductory course in regression analysis

Number of credits: 3

Semester Offered: *Winter*

Course Coordinators: Dr. Alex Bliu alex.bliu@mcgill.ca

Course Description: The two most commonly used regression modeling approaches in the health sciences, linear and logistic regression models are presented. These models can be used for estimating the association between an outcome variable (which is either continuous or dichotomous) and one or more covariates.

Objectives:

The student will learn:

- General concepts behind statistical model building: Why do we need statistical models?
- How to determine the kind of model needed based on: i) the biological/theoretical model, ii) the structure of the data.
- How to carry out preparatory descriptive analyses prior to regression modeling.
- How to fit, interpret and evaluate some linear and logistic regression models.
- Relationship between regression models and concepts learned earlier (descriptive statistics, confounding, effect modification).

Prerequisite: Biostatistics for Health Professionals (EPIB-507) or equivalent.

Recommended Reading:

1. Applied Biostatistics for the Health Sciences: Richard J. Rossi (Montana Tech, The Univ. of Montana)
<http://ca.wiley.com/WileyCDA/WileyTitle/productCd-0470147644.html>
2. Regression Methods in Biostatistics: Linear, Logistic, Survival and Repeated Measures Models Vittinghoff, Shiboski, Glidden, McCulloch (University of California at San Francisco)
<http://www.epibiostat.ucsf.edu/biostat/vgsm/>

Method of Evaluation:

5 assignments (80%) + 1 project (20%)

To register for this course, the student must have successfully completed EPIB-507 - Biostats for Health Sciences (3 credits), or another Statistics course approved by the Graduate Program Director.



POTH- 630: Measurement in Rehabilitation II

Number of credits: 3

Semester Offered: **Not offered in Winter 2023**

Course Coordinators: Dr. Sara Ahmed

sara.ahmed@mcgill.ca

Course Description: Theoretical and practical basis for measurement in rehabilitation research. Introduction to measurement theory, scale development and related statistics, approaches and instruments used to access outcomes in patients with musculoskeletal, neurological, cardiovascular, respiratory, psychiatric or psychological conditions.

Objectives:

- Design a health-related questionnaire.
- Describe the theory of measurement.
- Select and apply statistical tests employed in the assessment of psychometric properties of measurement instruments.
- Design a protocol for the development and validation of a clinical tool.
- Describe the foundations and applications of health economics in rehabilitation research.
- Describe examples of and critically evaluate existing measures of clinical and performance status. (i.e. pain, activities of daily living, health, quality of life, mood, cognition, fatigue, development, mobility, impairment, activity, participation, reintegration, satisfaction, adherence, etc.)
- Critically appraise published articles reporting the development and validation of an instrument.
- Interact professionally with small groups of other students to complete assignments.

Prerequisite: Biostatistics for Health Professionals (EPIB-507) or equivalent.

Required and/or Recommended Reading: Required reading will be compiled in a Course Pack along with copies of the transparencies used by the instructors. The Course Pack may be purchased by the students. The textbook to be used is Health Measurement Scales: A Practical Guide to their Development and Use.

Method of Evaluation: Questionnaire development (15%), Research protocol (40%), Peer protocol critiques (10%), Examination - a two-hour open book exam (35%).



POTH-631: Research Proposal

Number of credits: 3

Semester Offered: *Winter*

Course Coordinators: Dr. Nancy Mayo

nancy.mayo@mcgill.ca

Course Description: The course covers issues involved in the development of a research protocol. The presentation of a written thesis proposal is required by the end of the course. This document will serve as the basis for an oral presentation to the student's supervisory committee which will also review the written proposal.

Prerequisites

1. Research Methods (POTH-610)
2. Statistics (EPIB-507 or equivalent)

Note: Multivariate statistics can be taken concurrently

Objectives: By the end of this course, the student will be able to write a research proposal that will serve as a basis for the student's written and oral presentation of the thesis project.

Method of Evaluation: An equal weight of peer review and written protocol.



POTH 639: Motor Control

Semester Offered: *Fall*

Number of credits: 3

Course Coordinator: Dr. Mindy Levin mindy.levin@mcgill.ca

Course Structure: 3 hours per week, divided into asynchronous teaching, workshops or class discussions.

Calendar Course Description: Theoretical course with practical demonstrations and applications providing an overview of basic anatomy of the motor system, current knowledge of how movement is controlled by the nervous system and how motor skills are learned. Models of motor control will be introduced and discussed including the action-perception theory, force control theory, internal models and the equilibrium point theory. Motor learning theories related to muscular and neurological plasticity as it applies to orthopaedic and neurology clinical practice will be introduced and discussed.

Online Course Evaluations: Students are strongly encouraged to complete the online course evaluations at the end of the term. Data obtained from these evaluations are used to provide instructors with feedback as well as for identifying situations where a course or instructor needs assistance. The feedback and suggestions contained in the responses are highly valued and helpful in ensuring that instructors make appropriate changes to courses as needed in order to facilitate student learning.

General Learning Outcomes:

With attendance and active participation in class, the student will be actively engaged in developing the following core competencies for the practice of physiotherapists, kinesiologists and trainers in the context of the practice of physiotherapy.

Expert

1. Describe current theories of the production and organization of movement;
2. Understand the controversies and discriminating features of different theories of motor control;
3. Describe current theories of motor learning.
4. Appraise the evidence for the effectiveness of different types and delivery schedules of feedback for motor learning in different patient populations;
5. Integrate motor control and motor learning theories in the design of treatment and/or training to optimize motor function in different patient populations.

Communicator

1. Demonstrate the use of effective and appropriate terminology to describe motor control and motor learning in both verbal and written form.

Scholarly practitioner

1. Apply concepts based on current theories of the production and organization of movement to physiotherapy practice and/or sensorimotor rehabilitation;
2. Apply concepts based on current theories of motor learning to physical therapy practice, training and/or sensorimotor rehabilitation; and the use of extrinsic information;
3. Apply elements of motor control used to assess movement quality and motor learning in the evaluation and treatment of simulated cases in orthopaedics and neurology.
4. Select and incorporate into practice optimal assessment methods and outcome measures related to motor behavior.

Course Content:

1. Introduction: Course content and requirements
Review of basic anatomy and physiology of the sensorimotor system
2. Motor Control Theories 1: historical perspective, philosophy of motor control, early motor control theories starting from Sherrington (e.g., motor programming, schema theory).
3. Motor Control Theories 2: dynamical approaches/modeling/equilibrium-point theory
4. Motor Control Theories 3 – equilibrium point theory, Controversies in motor control
5. Motor Learning 1 - historical overview and current theories
6. Motor Learning 2 – used of enhanced information – feedback
7. Neural plasticity, compensation and recovery
8. Approaches to clinical evaluation and measurement
* **Note:** Some lectures/labs will be given in different buildings across the campus, and sometimes off campus.

Instructional Methods: The course combines lectures, workshops and small group presentations

Course Materials:

Required Textbook:

Mark L. Latash. Fundamentals of Motor Control, 1st Edition. 2012

Imprint: Academic

Press ISBN:

9780124159563

Suggested Readings:

Kandel and Schwartz – Principles of Neural Science. Ch.19,35 (Ghez),37,38,40-42

Boyd LA, Winstein CJ. Explicit information interferes with implicit motor learning of both continuous and discrete movement tasks after stroke. *Journal of Neurologic Physical Therapy*. 30:46-57, 2006

Calota A., Feldman A.G., Levin M.F. Spasticity measurement based on tonic stretch reflex threshold in stroke using a portable device. *Clinical Neurophysiology*, 119:2329-2337, 2008

Calota A., Levin M.F. Tonic stretch reflex threshold as a measure of spasticity: implications for clinical practice. *Topics in Stroke Rehabilitation*, 16(3):177-188, 2009

Greeno J.G. Gibson’s affordances. *Psychological Review* 101:336-342, 1994

Gibson JJ. *Reasons for Realism*. Chapter 4.9. Erlbaum: New Jersey 1982

Levin MF, Panturin E. Sensorimotor integration for functional recovery and the Bobath approach. *Motor Control* 15(2): 285-301, 2011

Turvey MT, Fitch HL, Tuller B. The Bernstein Perspective. I. The Problem of degrees of freedom and context-conditioned variability. P. 239-262.

Winstein CJ, Meriens A.S., Sullivan K.J. Motor learning after unilateral brain damage. *Neuropsychologia*, 37:975-987, 1999. ,

Student Assignments and Evaluation:

Assignment/evaluation	Description	%
Class participation	Attendance in class and participation in small group discussions	10%
Reading assignments - 2 worth 15% each - individual	Students will be assigned research papers to read for which they will prepare a 5 page (1.5 spacing, 12 Times New Roman font) assignment that includes a) a summary of the papers and b) an application of the ideas presented in the paper to physical therapy or sport.	30%
Lab/Case Reports	There will be 3 lab/case reports worth 10% each. Students will be working in assigned groups.	30%
In class presentation	Students will present applications of course material (motor control theory and motor learning) to specific patient-based cases.	30%

Special Requirements for Course Completion and Program Continuation: In order to pass the course, a grade of at least B- (70%) must be obtained as a total course mark. Please refer to Section [7.7 Examinations](#), of the 2015-2016 McGill University Health Sciences Calendar for information on University regulations regarding final examinations and supplementals.

This course falls under the regulations concerning theoretical and practical evaluation as well as individual and group evaluation. Please refer to the section on Marks in the Rules and Regulations.



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](#).

Attendance: Students who have missed more than 10% of small group sessions without prior approval will lose 10% of their total course mark.

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, except in 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).

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.

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.



POTH-661/662: Research Project

Number of credits: 15

Semester Offered: N/A

Course Coordinator: Graduate Faculty

Two courses totaling 15 credits

POTH-661: 7 credits

POTH-662: 8 credits

Restriction: M.Sc. NT students only

Note: Registration for POTH-662 requires pre-approval by Graduate Program Director based on email from Supervisor to Graduate Program Director indicating satisfactory progress in POTH 661.

Course Description: Allows students to apply principles learned in the Graduate Program to a particular area of clinical interest to the Graduate Student. It is recommended (although not required) that the project be an extension of the Directed Practicum experience, with the aim of promoting or enhancing evidence-based practice in that field of interest. The research project does not require an original protocol or original data collection. An exhaustive review of work in the particular field of study or original scholarship would be beyond the scope of a non-thesis project.

Objectives: The student must demonstrate 10 of the 28 learning objectives listed on the next page. No specific criteria is “compulsory” thus allowing for a broad range of projects to meet the criteria; however, each project must meet at least 1 criterion in each division. These are broadly divided into

1) Introduction and background; 2) methodology and data collection; 3) results and analysis; and 4) Presentation of results and conclusions. See table below.

Method of Evaluation: Pass / Fail

POTH 661-2 Objectives

<p>Introduction and background</p> <p>Formulating a research question</p> <p>Critically reviewing the literature (the breadth and depth should be appropriate to the degree being pursued)</p> <p>Developing background information supporting the research question</p> <p>Presenting a theoretical model of the relationships under study</p> <p>Systematic literature review</p>	<p>MET</p>
<p>Methodology and data collection</p> <p>Choosing measures to answer the question</p> <p>Developing a measure</p> <p>Developing or refining a questionnaire</p> <p>Testing the measurement properties of a measure or questionnaire</p> <p>Writing a consent form</p> <p>Recruiting subjects into a research study</p> <p>Collecting data from subjects through interviews or physical tests</p> <p>Management and study co-ordination</p> <p>Choosing a design to answer the question</p> <p>Creating a computerized method of managing the data (database design)</p> <p>Entering data into a computerized data base</p> <p>Verifying accuracy and completeness of data</p>	
<p>Results and analysis</p> <p>Manipulating data to create new variables</p> <p>Calculating descriptive statistics</p> <p>Performing basic inferential statistics such as</p> <ul style="list-style-type: none"> - linear regression or logistic regression, analysis of variance, t-tests, Chi-square tests, etc. <p>Using complex statistical models such as</p> <ul style="list-style-type: none"> - Hierarchical linear models, Poisson models, ordinal regression, categorical regression, survival analysis, Cox proportional models, Markov models etc. <p>Meta-analysis</p> <p>Performing basic qualitative analyses such as</p> <ul style="list-style-type: none"> - categorizing and contextualizing, reflexivity, transparency, constant comparison, etc. <p>Performing complex qualitative analyses such as</p>	
<p>Presentation of results and conclusions</p> <p>Performing complex modeling strategies incorporating aspects of the theoretical model</p> <p>Interpreting results from statistical or qualitative analyses</p> <p>Casting tables to present results</p>	



POTH-663: Pain Assessment in Clinical Practice

Number of credits: 3

Semester Offered: *Online Winter*

Course Coordinator: Mark Ware mark.ware@mcgill.ca
Céline Gélinas celine.gelinas@mcgill.ca
Lesley Norris Singer lesley.norris@mcgill.ca

Course Description: This course will assist learners to develop approaches to the global assessment of the patient with pain (acute and chronic) to guide diagnosis, care and treatment and the identification of complex cases. This will include conventional health assessment techniques (interview and physical examination), pain assessment tools, psychosocial assessment, specific techniques (e.g. examination of lumbar spine, functionality assessments), and the role and value of diagnostic studies. The course will be offered through various strategies including online Power Point presentations, weekly readings, case studies, using examples from participant's own practices; interdisciplinary, through working with tutors from a variety of backgrounds; and interactive, through the use of online forums and chatrooms.

Specific Objectives:

[**Assessment** here refers to patient evaluation at first visit and follow-up with respect to aspects of pain syndrome and outcomes]

- To review definitions and types of pain (i.e., acute, chronic, nociceptive, neuropathic) and appreciate how assessment techniques differentiate between pain syndromes
- To be able to conduct a health history, including medical, physical and psychosocial factors and comorbidities that could contribute to the perception and management of chronic pain
- To be able to complete physical examination adapted to the patient's condition and pain problem, and recognize normal and abnormal findings
- To understand the psychometric properties (i.e. reliability, and validity) related to the use of pain assessment tools for their appropriate selection and optimal use in clinical practice with different populations from infancy to old age
- To identify psychosocial factors relevant to pain assessment
- To appreciate the role of objective functional assessments (e.g. six minute walk; sit-to-stand test)
- To appreciate use of screening tools for common issues such as addiction risk and problematic drug use
- To understand when to request and how to interpret common diagnostic tests
- To use assessment findings for the establishment of the patient's care plan and treatment for pain management
- To be able to conduct assessment of effectiveness of therapy
- To identify and address communication issues in patient assessment
- To be aware of the importance of documentation of assessment findings

McGill University is situated on the traditional territory of the Kanien'kehà:ka, a place which has long served as a site of meeting and exchange amongst nations. We recognize and respect the Kanien'kehà:ka as the traditional custodians of the lands and waters on which we meet today.



POTH-664: Neuroscience and Behavioural Perspectives of Chronic Pain

Number of credits: 3

Course Coordinator: Lesley Norris Singer

Semester Offered: *Online Fall*

lesley.norris@mcgill.ca

Course Description: The course is designed to review the basic neuroscience of pain and the interrelationship between psychological, physiological and environmental processes in pain perception. Neuro-anatomical, physiological, pharmacological, and biochemical mechanisms involved in nociception are presented. Neural changes that accompany chronicity are examined. The contributions of psychological factors such as mood and cognition, as well as environmental factors are examined as contributors to the pain experience.

Conceptual paradigms are introduced that allow integration of the biomedical and psychosocial factors to understand the pain experience. These lead to an understanding of how psychological and environmental factors can modify or maintain pain perception and behaviour and how these might be modified to manage the pain experience.

Specific Objectives:

- To develop an understanding of the basic neuroscience of pain, with an emphasis on mechanisms of chronic pain.
- To explore the interrelationship between psychological, physiological and environmental processes in pain perception and
- To consider how this new knowledge provides clinical options for modifying and improving the pain experience for the patient.

By the end of the course the student is expected to:

- Appreciate the major contributors to chronic pain within the biopsychosocial model,
- Discuss essential concepts and details of mechanisms based on the latest available research evidence,
- Understand why and how to integrate a biopsychosocial approach to assessment and management of pain problems.

Structure:

The course content is divided into 13 sessions. Three of those sessions are exercises created by the students that serve as evaluation modules. The other ten sessions consist of lectures, related reading assignments, an online discussions. For some activities, the students will be divided in groups and will be required to participate in various exercises such as preparing a case history, evaluation of a patient or a treatment plan for a several chronic disorders.



Method of Evaluation:

Item	Weighting
Participation - Online discussion activity	15%
Designing a treatment plan (Unit 12)	35%
Case presentation and discussion (Unit 5)	25%
Therapeutic intervention (Unit 11)	25%

Structure:

The course content is divided into 13 sessions plus a case presentation session. These consist of recorded lectures, reading assignments, online discussions, and an online presentation by students. During the course, students will be expected to provide a case history, conduct a health assessment, request and consider diagnostic tests, and begin to develop the components of a treatment plan. They will also be expected to identify what health-related outcomes they will monitor to assess response to treatment, and to document and communicate their findings.

The objectives will be met using common pain conditions and syndromes in a case-based format, relevant to students' practice and experience.

Method of Evaluation:

- Participation (15%)
- Case presentation (45%)
- Written assignment (20%)
- Practicum (20%)

POTH-665: Interdisciplinary Management of Chronic Pain

Number of credits: 3

Semester Offered: *Online Fall*

Course Coordinator: Kimberley Smalridge

kimberley.smalridge@mcgill.ca

Course Description: This course has been designed for the online chronic pain management certificate. The content has been provided by clinical experts from multiple disciplines, emphasizing both discipline- specific and interdisciplinary approaches to managing and treating chronic pain. Pharmacologic and non- pharmacologic intervention strategies will be elaborated upon to help patients decrease their pain and develop coping strategies. Topics will also include complementary and alternative medicine approaches. The course is intended to update your knowledge and skills in the effective management of chronic pain.

Specific Objectives:

This course provides:

- An opportunity to learn about current interdisciplinary modalities used in the management of chronic pain;
- Discussion on the relationships between pharmacologic, psychological, educational and physical treatment approaches;
- Exposure to various clinical options that should be considered for modifying and alleviating pain for the client.

By the end of the course the student is expected to:

- appreciate the various treatment options and guidelines for chronic pain,
- be able to design a treatment plan for a patient experiencing chronic pain,
- discuss the evidence available for the treatment options
- understand and explain the mechanisms by which a treatment works, if known,
- consider how this new knowledge should influence clinical decision making, to alleviate pain
- be able to use appropriate outcome measures to monitor progress
- be able to provide patients with the tools they need for self-management and confronting periods of exacerbation.

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Medicine and
Health Sciences

School of
Physical and
Occupational Therapy

Structure:

The course content is divided into 14 sessions, including assignments and presentations. These consist of videotaped lectures and a related reading assignment, online discussions, online presentations by student (alone and in groups), videos and case vignettes. During the course, students will be divided into groups and will be required to develop a treatment plan for an individual with a specific disorder involving chronic pain. As well they will participate in a clinical exercise related to the development of a treatment plan for a patient with a specific pain condition.

Method of Evaluation:

Participation (15%)

Assignment 1 (45%)

Assignment 2 (20%)

Presentation (20%)

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POTH-666: Common Clinical Pain Syndromes

Number of credits: 3

Semester Offered: *Online Winter*

Course Coordinator: Kimberley Smalridge

kimberley.smalridge@mcgill.ca

Course Description: The course is designed to review the common clinical pain syndromes that health care professionals will encounter in practice. This will give students the opportunity to build upon their previous learning skills and integrate the pain science, evaluation and treatment approaches they have learned.

Course Objectives:

- Apply newly integrated knowledge of pain science and interdisciplinary practices in common/complex chronic pain syndrome through the development of assessment and treatment plans.
- Identify the definition, classification, epidemiology, and mechanisms of the most common pain syndromes, and the present scientific evidence related to specific assessment and intervention (management), prognosis and or expected outcome.
- Demonstrate the ability to recognize and decide which patients may require further professional opinion.

Method of Evaluation:

Participation (15%)

Online Quizzes (45%)

Final assignment (40%)



POTH-673: Screening for At-Risk Drivers

Number of credits: 3

Course Coordinator: Nancy Turcotte

Semester Offered: *Online Fall*

nancy.turcotte@mcgill.ca

Course Description: Principles for screening at-risk disabled drivers. Students must be comfortable in basic computer use. Familiarity with the internet and word processing skills are essential for successful orientation through the course.

Objectives:

- Identify the component skills required to drive a motorized vehicle and analyze the potential impact of various functional deficits on the driving task;
- Invoke different theoretical models of driving behaviour in order to focus the clinical screening of at-risk drivers;
- Identify the regulations and legal aspects of driving and licensure;
- Explain the screening principles and apply correct screening procedures in order to identify at-risk drivers within the continuum of the health care system;
- Identify clients in need of referral to centers offering specialized driving evaluation services.

Method of evaluation: 4 exercises (18% total), 3 assignments (42% total), and final written exam (proctored) (40% total).



POTH-674: Assessing Driving Ability

Number of credits: 3

Semester Offered: *Online Winter*

Course Coordinator: Alyssa Merilees

alysadawn.merilees@mcgill.ca

Nancy Turcotte Nancy.turcotte@mcgill.ca

Course Description:

populations.

*Students must be comfortable in basic computer use. Familiarity with the internet and word processing skills are essential for successful orientation through the course.

Pre-requisites: Successful completion of POTH-673 Screening for At-Risk Drivers.

Objectives:

- Distinguish between various off-road evaluations, their strengths and weaknesses for the assessment of the prerequisite skills required for driving;
- Competently analyze newly developed assessment tools as they become available. Being able to determine the quality of tools will better enable the clinician to make decisions regarding the value of using specific tools for specific clientele;
- Create a driving assessment procedure relevant to the assessment of an individual client;
- Map out a driving route and conduct an on-road driving assessment that captures the key components required to evaluate on-road driving ability;
- Prescribe basic controls and technical driving aids;
- Prepare summary reports required by licensing bodies;
- Describe the debriefing process in informing the client and the key stakeholders about the driving assessment outcomes;
- Describe the legal implications and professional responsibilities of a driving evaluator.

Method of Evaluation: 10 exercises (30%), 2 assignments (25%), and final written (proctored) (45%).

exam



POTH 675- Driving Assessment Practicum

Number of credits: 3

Semester Offered: *Online Summer*

Course Coordinator:

Alyssa Merilees

alyssadawn.merilees@mcgill.ca

Course Description: This tutorial with directed practical experience in a clinical setting related to driving evaluation is a sequel to the course “*Assessing the ability to drive a motor vehicle*”. It seeks to integrate acquired knowledge into clinical practice and emphasizes the use of evidence-based practice.

*Students must be comfortable in basic computer use. Familiarity with the internet and word processing skills are essential for successful orientation through the course.

Pre-requisite courses: Screening for At-Risk Drivers (POTH-673) and Assessing Driving Ability (POTH-674)

Objectives:

- Have mastered the necessary skills to assess driving ability in disabled populations;
- Have mastered the necessary skills to recommend basic adaptive equipment for driving;
- Be able to incorporate evidence-based knowledge into their clinical practice related to driving evaluation;
- Demonstrate appropriate verbal and written communication skills in order to interact with clients, caregivers and other health care professionals.

Method of Evaluation: Pre-workshop Assignment: 2 case studies (30%), 1 case study (25%), Final Exam (Practical exam: 30% and Proctored Written exam: 15%).



POTH-676: Adaptive Equipment and Driving

Number of credits: 3

Semester Offered: *Online Fall*

Course Coordinator:

Alyssa Merilees

alysadawn.merilees@mcgill.ca

Pre-requisite courses: Screening for At-Risk Drivers (POTH-673), Assessing Driving Ability (POTH-674) and Driving Assessment Practicum (POTH-675).

Course Description: Prescription of complex adaptive equipment for driving and procedures of full van modifications. Safety considerations, vehicle choice and importance of driving retraining (specifically with adaptive equipment) are addressed.

*Students must be comfortable in basic computer use. Familiarity with the internet and word processing skills are essential for successful orientation through the course.

Objectives:

- Determine the most appropriate adaptive driving aids to meet the complex client's needs through a systematic clinical assessment process;
- Select the adaptive automotive technology that will most appropriately meet the client's needs, based on findings gained during both the clinical assessment and the equipment verification process;
- Describe the part a detailed recommendation plays when obtaining a quote, applying for financial aid and undertaking the final fitting process;
- Apply the theoretical concepts assimilated during the online component of the course to the assessment of clients in a real clinical setting;
- Independently assess the vehicle modification and adaptive equipment needs of a complex client.

Method of Evaluation: Three written assignments (45%), final proctored written exam (30%) and workshop performance evaluation (25%).



POTH-677: Retraining Driving Skills

Semester Offered: *Online Winter*

Number of credits: 3

Course Coordinator: Dr. Isabelle Gélinas

isabelle.gelinas@mcgill.ca

Course Description: Principles of retraining driving skills in various clientele through the use of different modalities. Several retraining methods will be analyzed, including driving simulators, visual training, on-road training, and compensatory techniques.

Pre-requisite courses: Screening for At-Risk Drivers (POTH-673), Assessing Driving Ability (POTH-674), and Driving Assessment Practicum (POTH-675).

Objectives:

- Understand the different areas of intervention in driving rehabilitation and the roles of the main players involved;
- Explain the principles of teaching and learning applied to driver rehabilitation;
- Appreciate the nature of the work of the occupational therapist with the driving instructor when training disabled drivers;
- Select different modalities that can be used to train driving skills;
- Apply the knowledge to specific populations;
- Understand the importance of prevention to promote safe driving;
- Recognize the importance of providing support to client when driving cessation is necessary.

Method of Evaluation: 7 assignments (45%), workshop exercise & participation (15%), and final written examination (proctored) (40%).

POTH 680- Knowledge Translation in Rehabilitation

Number of credits: 3

Semester offered: Fall

Course coordinator: Dr. Anita Menon

anita.menon@mcgill.ca

Course description

This course focuses on the theory/application of knowledge translation (KT) in rehabilitation science with the goal of promoting evidence-based practice and research utilization. Various client groups and clinical settings will be examined from the perspective of how research evidence can be implemented into daily practice using effective KT interventions.

Learning outcomes

On completion of this course, the student will be able to:

- define and distinguish between terms commonly used in the knowledge translation (KT) literature;
- identify gaps in best practices versus actual practices published in the research literature for a particular client group or clinical setting;
- apply methods for critically appraising and synthesizing the research evidence (e.g. research questions in PICO format, use of practice guidelines and systematic reviews, levels of evidence versus the role of clinical reasoning and experience, etc.), as well as identify how this evidence can be “re-packaged” for a particular client group or clinical setting;
- identify barriers and facilitators related to the uptake of best practices for a particular client group or clinical setting based on KT theoretical models (e.g. Theoretical Domains Framework, Consolidated Framework for Implementation Research)
- define and apply various KT theoretical process models (e.g. Knowledge to Action Model, Ottawa Model of Research Use) to specific clinical situations in order to propose KT interventions that close the knowledge gap and promote evidence-based practice;
- apply the current evidence regarding effective and non-effective KT interventions for developing an KT intervention plan for a real or hypothetical clinical setting;

Course content

The focus of the course will be on the theory and application of KT in rehabilitation science with the goal of promoting evidence-based practice and research utilization. Various client groups and clinical settings will be examined from the perspective of how research evidence can be implemented into daily practice through the use of effective KT interventions. Content of the course will be grounded through the application of various KT/implementation theories.

Instructional methods

The course will include synchronous (real-time) lectures delivered in-person or online via Zoom (www.zoom.us), online readings, web-based resources as well as interactive group discussions and/or assignments during lecture time, in order to help students master the theoretical concepts and practical application of KT principles. The instructors will not be explicitly lecturing on the knowledge or practice gaps that are specific to each student’s area of interest. Students are expected to find this literature in a self-directed manner in order to complement their understanding of the practice gaps, if deemed necessary. The main portion of each lecture will be devoted to the theory and application of knowledge translation in rehabilitation science with the goal of promoting evidence-based practice.

Course materials

Each synchronous lecture (in-person or online) will have a designated list of assigned readings and web-based resources and/or supporting documents. All content and Zoom links will be posted on myCourses. It is the student’s responsibility to review the web-based resources and read all assigned readings prior to each synchronous lecture. Presentation slides for synchronous lectures will be made available before or following the end of each lecture. All synchronous lectures will be recorded and made available on myCourses.

Electronic device with Internet and/or phone

Students are requested to use an electronic device with Internet access (e.g. laptop, tablet, smartphone) in order to access course materials on myCourses and participate in synchronous lectures offered remotely via Zoom. You can also join the lecture by telephone using the Zoom Call-in number and Meeting ID. If access to an electronic device with Internet is not possible during the course, students are encouraged to inform the instructor as soon as possible.

Required textbook (available as e-book from library)

Straus S, Tetroe J, Graham ID. *Knowledge translation in health care: moving from evidence to practice*. Wiley-Blackwell, BMJI Books, 2009 or 2013.

Method of evaluation

- Outline of KT grant proposal 15%
- KT grant proposal (8 pages): written (40%) and oral (15%) 55%
- Assignments (2 X 15% per assignments) 30%
 - Assignment 1: KTA model
 - Assignment 2: Barriers TDF

The main assignment is the KT grant proposal. All formative/summative assignments throughout the term will serve to inform the design and completion of this project.

Marks on assignments and outline of KT proposal will be posted on myCourses. Detailed feedback on assignments and outline of KT proposal will be sent to students by email.

SCHOOL POLICIES

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

Attendance

Students are expected to review the assigned readings prior to each class and attend all synchronous lectures offered in-person or online via Zoom. It is the responsibility of each student to attend all classes prepared and be actively involved. Although attendance will not be taken, the materials covered in class will be subject to evaluation. It is common professional courtesy to attend lectures scheduled in health care institutions. If a synchronous lecture will be missed, the instructor must be informed as soon as possible with proper justification. Your respectful, active and attentive presence is expected during in-person and remote lectures: while your audio should be muted during the synchronous lectures offered remotely via Zoom and you can choose to keep your video camera on or off, you are encouraged to ask questions (using chat feature) during the presentation as well as actively participate in group discussions and/or assignments during lecture time.

Right to write in (English or in) French

"Every student has a right to write essays, examinations and theses in English or in French except in courses where knowledge of a language is one of the objectives of the course."

Special requirements for course completion and program continuation

Assignments not completed on time will be penalized 5% of the total mark per day, including weekends. If an assignment cannot be submitted on its due date, students are encouraged to inform the instructor as soon as possible with proper justification. To pass the course, a grade of at least B- (65%) must be obtained as a total course mark.

Disability

If you have a disability and require accommodations for this course, please contact the instructor to arrange a time to discuss your situation. Students must contact the Office for Students with Disabilities to receive any specific accommodations for the course or assessments.

Professional Conduct

Professionalism and accountability are expected throughout the course of the semester. This includes the on-going respectful nature of teacher-student as well as student-student interactions. Professionalism with respect to dress is encouraged throughout the

course of the semester especially while on site visits. It is each student's responsibility to have appropriate attire during all class assignments and learning activities.

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 (<https://www.mcgill.ca/students/srr/academicrights>)

Statement regarding Copyright of instructor-generated course materials

Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions, lecture recordings 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. This means that each of you can use it for your educational (and research) purposes, but you cannot allow others to use it, by putting it up on the Internet or by giving it or selling it to others who may also copy it and make it available. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures."

(<https://www.mcgill.ca/tls/instructors/course-design/outline>)

Technology in Class

Your respectful attentive presence is expected, therefore while you are permitted to use electronic devices in class, it is understood that you will not be using these devices for social purposes during class time. Your electronic devices should be on silent mode during class time and phone calls should only take place during the break or after class.

Statement regarding Diversity

The Graduate Rehabilitation Program recognizes our responsibility to foster a learning environment where students and instructors can engage in dialogue and exchange ideas without being made to feel unwelcome or disrespected in view of their identity or beliefs. The Program intends that the instructional design of all courses minimize any barriers to participation, particularly barriers based on age, biological sex, disability, gender identity or expression, indigenous ancestry, linguistic and cultural background, race/ethnicity, religion, sexual orientation, political views, opinions, ideologies, and any other aspect integral to one's personhood. We therefore recognize our responsibility, both individual and collective, to strive to establish and maintain a respectful environment that is free from discrimination.

Health and Wellness resources

Student well-being is a priority for the University. The Student Wellness Hub is a resource for student physical and mental health. If you need to access services or get more information, visit the Virtual Hub at mcgill.ca/wellness-hub or connect with a Local Wellness Advisor (www.mcgill.ca/lwa)



POTH 682 PROMOTING HEALTHY ACTIVITY

Number of credits: 2

Semester Offered: M1 - Winter

Course Coordinators: Deborah Da Costa deborah.dacosta@mcgill.ca
Sarah Marshall sarah.marshall@mcgill.ca

Course Description: This course will critically evaluate theory and empirical research related to healthy behaviour patterns. Determinants of health behaviours will be examined across the lifespan and in clinical populations through lecture, readings and critical reasoning workshops. Application of behaviour change theories for the implementation and evaluation of health behaviour interventions will be discussed and developed through role-play among other educational strategies. By the end of the course, participants will understand relationships between health, wellness, illness and health promotion, and the leadership role of PTs in promoting wellness, and will be able to apply behavioural theories to design evidence-informed interventions to promote health within the context of rehab and inter-professional settings. In this class, the cases, situations, and words used are for the intent of education and are not intended to offend. "Whatever anybody says or does, assume positive intent. You will be amazed at how your whole approach to a person or problem becomes very different." - Indra Nooyi

Course Structure: Two 1½-hour classes each week. Classes will consist of lectures, clinical reasoning activities and group discussions, followed by student presentations in the last two weeks of the course

Student Learning Objectives: This course will cover essential competencies and milestones related to the domains of **Communication, Leadership** and **Scholarship**¹. Upon completion of this course, the student will:

Learning objectives	Milestones
2.1 Use oral and non-verbal communication effectively	2.1.1, 2.1.2, 2.1.4
2.2 Use written communication effectively	2.2.1
2.3 Adapt communication approach to context	2.3.1, 2.3.2, 2.3.3
2.4 Use communication tools and technologies effectively	2.4.2, 2.4.3
5.1 Champion the health needs of clients	5.1.1, 5.1.2, 5.1.3
5.2 Promote innovation in healthcare	5.2.1, 5.2.2, 5.2.3
5.3 Contribute to leadership in the profession	5.3.1, 5.3.2, 5.3.3
Learning objectives	Milestones
6.1 Use an evidence-informed approach in practice	6.1.1, 6.1.4
6.2 Engage in scholarly inquiry	6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.2.6

Course Materials: On-line course pack and selected readings through MyCourses. Students are expected to read the assigned reading(s) before each class and be prepared for critical discussion during the class.

¹ https://physiotherapy.ca/sites/default/files/competency_profile_final_en.pdf



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Student Assignments and Evaluations*

Assignment/Evaluation	Value	Due Date	Milestones Assessed
Thought Questions based on assigned readings (in your group)	25%	During the course	2.1.1, 2.2.1, 2.3.2, 2.4.2, 2.4.3
3 Critical Reasoning Workshops	5%	During the course	5.1.1, 5.1.3, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 6.1.1, 6.1.4
Two (2) quizzes Multiple choice (in class, online) (15% for Quiz #1 and 25% for Quiz #2)	40%	Week 4 and Week 7	6.2.3, 6.2.4, 6.2.5, 6.2.6
Presentation and e-poster (in your group) (10% for the presentation and 20% for the e-poster which the group will upload to the relevant zone online on MyCourses)	30%	Week 8 and Week 9	2.1.1, 2.2.1, 2.3.2, 2.4.2, 2.4.3, 5.1.1, 5.1.3, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 6.1.1, 6.1.4

*The content and/or evaluation scheme in this course is subject to change.



POTH-684: Advanced Practice in Stroke Rehabilitation

Number of credits: 3

Semester Offered: *Winter*

Course Coordinator:

Anita Menon

anita.menon@mcgill.ca

Course Description/Topic Description

This course will focus on current knowledge of best practices in the area of stroke rehabilitation. Throughout the course students will have the opportunity of learning the “how to” of diagnosis, assessment, and intervention using simulated patients as well as real patients. In addition, the content has been created to provide students with critical appraisal skills specific to stroke methodology that will further the acquisition of best practice information and principles in stroke rehabilitation.

The course is taught in a modular format. The first four introductory modules are required for all students. Nine optional modules are available out of which the student is to pick 6 as per their interest and professional background. Each of the 6 modules will focus on specific post-stroke sequelae and their management (problem identification and differential diagnosis; screening and assessment; intervention and referral practices).

Specific Objectives

On completion of this course the student will be able to:

- describe the key interventions and best practices in stroke rehabilitation according to the Canadian best practice stroke rehabilitation guidelines as well as key differences in the guidelines in various high-income countries (USA, UK, Australia);
- situate stroke rehabilitation assessment and intervention within the larger context of stroke management –including stroke risk factor reduction; stroke awareness by the public; Emergency management; prevalent medical issues and complications; and secondary stroke prevention;
- critically appraise research findings (both assessment and intervention studies) specific to stroke rehabilitation presented in amongst others - computer databases, journal publications, and, systematic reviews. Being able to determine the quality of the research will better enable the clinicians to make decisions regarding the value of using specific stroke assessments and interventions with their clients;
- identify new and emerging evidence regarding the effectiveness of stroke rehabilitation and the theory and research underpinning these interventions;
- identify issues related to optimal timing, intensity and matching of stroke treatments based on individual patient traits, impairments and preferences;
- create client-centered goals and a treatment plan for a patient with stroke within the context of an interdisciplinary team-based plan;

- apply learning related to assessment and intervention choices through the practice of administering assessments and interventions in a “real life” patient and using trained actors and virtual scenarios;
- describe characteristics of the work setting /environment (stroke units/structures/processes), and the clinician (habits, traits, self-efficacy) that enhance collaborative evidence-based practice to enhance patient outcomes in stroke rehabilitation.

Course content:

Module 1 – Stroke – An Overview Module

2 – Acute Stroke Rehabilitation

Module 3 - Stroke Rehabilitation Inpatient and Longterm Management Module 4 - Knowledge Acquisition

*Students are to pick 6 from the following 9 modules that each focus on one aspect of stroke rehabilitation.

Module 5 – Dysphagia - detection and treatment

Module 6 – Cognition and executive function post-stroke - detection and treatment Module 7- Visual-perception – detection and treatment

Module 8 - Gait and balance assessment and training; aerobic exercise; falls prevention Module 9 –

Maximizing family functioning post-stroke – the evidence that attention on family matters

Module 10 - The upper limb – positioning, spasticity management, assessment and treatment Module 11 – Sensory impairments - detection and treatment

Module 12 - Activities of daily living and community participation - assessment and treatment; aids and adaptations;

Module 13 – Driving safety post-stroke - assessment and intervention

Method of Evaluation: (please put all one line)

- **Online self-administered quizzes (4 quizzes)**

50%

These quizzes are designed to provide the student with an opportunity to test their knowledge and attain immediate feedback regarding their learning specific to key issues in stroke rehabilitation and specific to patient management – including identification of patient problems, making a differential diagnosis; as well as determining optimal assessment and intervention practices. The student will make use of the best practice guidelines and the evidence of intervention effectiveness to answer the quiz content.

- **Group assignment**

25%

Students will work collaboratively on case studies that offer practical opportunities to apply assessment and treatment principles and discuss differential diagnosis; patient-specific characteristics and how these influence treatment choices. By working on this assessment in a group context, students are encouraged to practice applying the best practice knowledge to the specific patient context using a “team approach”. The group assignments will be done online and in-person.



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- **Participation in review of intervention evidence**

25%

Students will work in pairs to evaluate the current evidence specific to an intervention of interest; will critique the quality of the evidence and prepare recommendations specific to the use of the intervention according to patient-specific characteristics and time since stroke onset. This assignment should help the student operationalize the process by which they seek and evaluate new stroke evidence as it emerges. This assignment will be done online.

NOTE: "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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POTH-685: Perception and Action

Number of credits: 3

Semester Offered: Fall

anouk.lamontagne@mcgill.ca

Course Coordinator: Anouk Lamontagne, PhD, PT

Course Description/Topic Description

This is a weekly lecture/seminar/laboratory course. It is designed to expose students to new research concepts related to perception and action, with a special emphasis on the understanding of motor behaviour and the exploration of potential applications in rehabilitation.

Specific Objectives

By the end of the course, the student will be able to:

- Understand the fundamentals of visual, auditory and vestibular function.
- Explain the interactions between sensory perception and motor action in the control of voluntary movement, posture and locomotion.
- Explain the role of executive cognitive function in motor performance.
- Discuss and critique the theoretical and practical implementation of augmented sensory feedback and/or virtual reality therapies to improve motor performance and behaviour.
- Participate, as a co-experimenter, in a practical demonstration/laboratory on a topic related to perception and action *.

Course content:

- I. Introduction: Sensory perception, movement and behavior.
- II. Visual perception (& movement)
- III. Auditory perception (& movement)
- IV. Vestibular function (& movement)
- V. Motor learning
- VI. Executive cognitive function and motor performance
- VII. Spatial memory and human navigation
- VIII. Sensorimotor integration in human posture
- IX. Sensorimotor integration in locomotion
- X. Rehabilitation Series: pain and movement
- XI. Rehabilitation Series: virtual reality and mobility
- XII. Rehabilitation Series: clinical cyberpsychology, CBT
- XIII. Practical/ Integration session

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* Note: Each 3-hour session comprises of 2 hours of theory and 1 hour of practical laboratory demonstration in which students will be actively engaged. In order to have access to the different research facilities, some lectures/labs will be given in different buildings across the campus, and sometimes off campus.

Required and/or Recommended Readings

The reading list will be provided by the course coordinator in collaboration with the faculty member or guest speaker responsible for the session. Most journal articles are accessible online through McGill Library and can be saved and printed directly from the web. When not accessible online through McGill Library, a paper copy of the readings will be provided at least one week prior to the class. Students are expected to have read the assigned readings prior to the class and be prepared to discuss them and ask questions during the class.

Evaluation:

Mid-term exam (50%): An 'open book' written examination covering the material presented during session I to session VII.

Written Assignment (30%): A 5-page written assignment (double-spaced) on one of the topics presented in class. The questions will be provided by the researcher who presented the course material and marked by this same person.

Practical (20%): Attendance (5%) and active participation (15%) to practical demonstrations and laboratories will be marked by the course coordinator and, when applicable, by the guest speaker or researcher responsible for the session.



POTH-701: Ph.D. Comprehensive Examination

Number of credits: 0

Semester Offered: *All Semesters*

Course Coordinator:

Dr. Isabelle Gélinas

isabelle.gelinas@mcgill.ca

Dr. Anouk Lamontagne

anouk.lamontagne@mcgill.ca

Pre-requisite courses: All required coursework as determined by the Supervisory Committee of the student.

Please see separate pdf file for a complete description of the Ph.D. Comprehensive Examination on the Graduate Program website.



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Medicine and
Health Sciences

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Physical and
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EDPH-689: Teaching and Learning in Higher Education

Number of credits: 3

Semester Offered: *Fall /Winter*

Course Coordinator: TBA

Course Description: Students will develop an understanding of teaching and learning as a process in which instruction is based on the learning to be accomplished. Students will design, develop, and evaluate a university course of their choice, and will develop facility and confidence in using teaching methods appropriate to their domains.

This course is being offered by the Faculty of Education please see their website for more information

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