PHTH 551 PHYSICAL THERAPY NEUROLOGICAL REHABILITATION 2013

Credits: 4

Prerequisites: For the students entering the qualifying year of the M.Sc. (A) PT program, knowledge of basic neuroanatomy and neurophysiology is required. Self-directed learning modules in basic neuroanatomy and neurophysiology will be available to students once registered.

For students currently registered in the B.Sc. Rehabilitation Science (major PT) program, successful completion of POTH 455 and ANAT 321 is required to register for PHTH 551.

Instructors:
Co-coordinators:

Joyce Fung, PT, PhD
Office: Hosmer House room 303
514-398-5734
joyce.fung@mcgill.ca

Adriana Venturini PT, MSc
Davis House room 44
514-398-5541
adriana.venturini@mcgill.ca

Lab coordinator: Claire Perez, PT, MSc
Office: Davis House room 44
claire.perez@mcgill.ca

Teaching assistants: Ms. Gayatri Aravind, Ms. Aditi Mullick, Mr. Kedar Mate and Miss Krithika Sambasivan

Other instructors:

Isabelle Gagnon, PT, PhD, Mindy Levin PT, PhD, Jadranka Spahija, PT, PhD, Sandeep Subramanian PT, PhD, Mike Trivino PT, MSc. Michel Danakas PT, Allison Jacobson MSc PT, Jill Boruff , MLIS, Liaison librarian.

Access to Instructors: email and by appointment preferred

Course Description: This four-credit course introduces the principles of neurological rehabilitation pertinent to physical therapy. By emphasizing the fundamentals of neuro-assessment, problem analysis, clinical reasoning, treatment planning and progression in various neurological conditions, this course builds a

conceptual framework that continues into the winter semester course PHTH 561 where more conditions and treatment methods will be presented. The fall semester course PHTH 551 incorporates the foundations of best evidence, informed practice, rehabilitation science, motor learning and neuroplasticity to develop a client-centered approach for the evaluation and management of neurological impairments and dysfunctions.

Course Structure: The course includes two 3-hour classes per week for 13 weeks. Both weekly lectures and smaller group laboratory sessions (labs) or clinical reasoning workshops (CRW's) provide the theoretical knowledge base and the opportunity for clinical skill development and practice. There are also four clinical site visits and optional open labs where an instructor is present for additional clinical skills practice.

Learning Objectives:

Following attendance and active participation in lectures, labs, CRW's and clinical site visits, the student will be able to:

1. recognize the principles of neurological rehabilitation across the life span and explain the underlying assumptions and scientific basis for intervention.

2. appraise the principles of normal development and aging and apply basic neuroscience concepts in the appraisal.

3. apply the International Classification of Functioning (ICF) model/framework to neurological populations and recognize the individual bio-medical, psychological, social, environmental and contextual factors which can influence health, treatment, rehabilitation and disease management.

4. appraise information and communication technologies that are relevant to neurorehabilitation.

5. outline the essential pathophysiology and basis for sensori-motor dysfunctions and evidence-informed treatment for selected adult neuromuscular conditions (ie. Guillain Barré Syndrome, Multiple Sclerosis, Amyotrophic Lateral Sclerosis, Post-polio Syndrome) as well as for traumatic and non-traumatic lesions of the spinal cord.

6. describe the cardiovascular and respiratory pathophysiological alterations that may occur in neurological conditions.

7. perform components of a physical therapy neuro-assessment (including postural and balance control, motor (tone) and sensory evaluations, and functional mobility assessments) and interpret assessment results.

8. demonstrate an evidence-informed choice and application of selected standardized assessment tools and (re-) evaluation techniques for neurological adult populations.

9. appraise the results/findings from initial and on-going clinical assessments; demonstrate clinical reasoning, problem-solving abilities and sound rationales for goal setting, treatment planning, as well as for treatment modifications and progressions.

10. document neuro-assessment results (impairments and activity limitations), analysis of results, clinical impression/prognosis, treatment goals and intervention plans with skill and competency, using the SOAPIE* framework.

11. develop and demonstrate professional and effective communication (verbal, non-verbal and written) during both the assessment and application of treatment for selected neurological conditions across the lifespan.

12. develop and demonstrate basic clinical skills related to: the performance of selected assessment procedures; basic treatment methods (hands-on skills, task-oriented approaches, neurofacilitation techniques and basic electrical stimulation application), and respect for the clients' dignity and autonomy (during clinical site visits).

13. comprehend how the interprofessional team can enhance the management of the senosrimotor dysfunctions discussed to date (ie. Guillain Barré Syndrome, Multiple Sclerosis, Amyotrophic Lateral Sclerosis, Post-polio Syndrome as well as for traumatic and non-traumatic lesions of the spinal cord.)

Instructional Methods:

Lecture: Didactic lecture with assigned readings and power point presentations available through MyCourses.

Labs: Hands-on practical skill laboratories for clinical assessment and some basic treatment techniques. Preparatory work/reading is required. Attendance is compulsory.

Clinical reasoning workshops (CRW): Generally case-based workshops where problem-solving skills are practiced. Preparatory work/reading is required. Attendance is compulsory.

Clinical site visits: With the guidance of a physical therapist, students visit two of the following health care settings to observe neurological assessments and treatments: acute care, in-patient rehabilitation, out-patient and either pediatric or a community setting. Two other clinical site visits take place during the spinal cord injury module. Attendance is compulsory.

Open labs: These are optional labs for students to practice the learned hands-on skills. The labs are staffed by clinical instructors or teaching assistants.

Neurophysiology tutorials: Optional tutorials for students working through self-learning modules in neuroanatomy and neurophysiology.

Course Content: Refer to MyCourses for details of weekly schedule and content. Below is an outline of major topics discussed.

- Frameworks for neurological assessment and models of clinical reasoning and care
- Charting initial and re-evaluation findings, problem analysis, clinical impression, planned intervention and progress notes (SOAPIE format)
- Normal development and movement acquisition across the lifespan
- Motor learning principles
- Control of balance and posture
- Control of mobility and gait functions
- Assessment of basic sensory function
- Assessment of muscle tone
- Functional mobility assessment and training using neuro-facilitation approach (ie. PNF)
- Concepts and application of evidence-informed practice
- Assessment and management of specific adult neuromuscular diseases, neuro-degenerative conditions and spinal cord injury.

Course Materials:

Required textbooks: can be purchased through the McGill bookstore. The following textbooks are also required for PHTH 561:

Shumway-Cook, A. and Woollacott, M. (2012). ***Motor control: Translating research into clinical practice***. (4thed.). Lippincott, William & Wilkins.

Umphred, D.A. (2013) (Ed.) ***Neurological Rehabilitation.*** (6thed) St. Louis: Mosby Elsevier.

Online course reserves: available through MyCourses. Contains required readings, lab and CRW material for the course.

Recommended: O'Sullivan, SA and Schmitz, TJ, (2009). ***Improving functional outcomes in physical rehabilitation***. Davis.

Other textbooks, suggested readings, articles and websites may be added.

The textbooks mentioned above are available on reserve at the Life Science library.

Copyright of course materials: Instructor generated course materials (e.g., handouts, notes, summaries, exam questions, etc.) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

Student Assignment and Evaluation:

7.5% Report on clinical site visits
In total three charting reports using SOAPIE format are submitted. One report is submitted for formative feedback and two subsequent reports are submitted for grading (2nd clinical site visit 5%, SCI 2.5%). Details will be discussed in class before the clinical site visits.

7.5% Reading Assessment Tests (RAT)
In total three RAT will be completed by each team before the practical labs on Sept 27th & Oct 4th via MyCourses and in-class during the CRW on Oct 18th. In-class discussion of answers will follow.

15% In-class test - 1, Wednesday, October 9th, 15:00-17:00

Content from Sept. 4th to October 4th
Multiple choice questions based on lectures and case studies.

15% In-class test - 2, Wednesday, November 6th 16:00 – 18:00
Content from Oct 11th to Nov 1st
Multiple choice questions based on lectures and case studies.

15% Evidence-informed practice group project.
Current topics of discussion in the physical therapy community will be assigned to learning teams first week of Nov. Powerpoint presentations due on/before November 21st. Oral presentation (Nov 22nd) graded by instructor and peers.

40% OSCE (Objective Structured Clinical Examination) held during exam period on Monday, December 9th 8:30 – 5:30 at the McGill Medical Simulation Centre. Performance on 4 practical scenarios is evaluated for each student. (total time 48 mins).

Formative evaluation
Students will have an opportunity to participate in a compulsory mock OSCE exercise at the McGill Medical Simulation Centre on Oct 25th. Formative feedback will be provided after the exercise.Formative feedback is provided to students on submission of the first SOAPIE report.

Special Requirements for Course Completion and Program Continuation:
For U3 students, in order to pass the course, a grade of at least C+ (60%) must be obtained as a total course mark. For QY students, in order to pass the course, a grade of at least B- (65%) must be obtained as a total course mark. Please refer to the appropriate sections in both undergraduate and graduate calendars on University regulations regarding final and supplemental examinations.
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 for Student Evaluation and Promotion.

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).

Dress Code: Students are expected to demonstrate professional behavior and wear appropriate attire at all times. During lab sessions students are expected to be dressed appropriately for practicing and demonstrating clinical skills.

Attendance: Students who have missed more than 10% of laboratory sessions, clinical reasoning workshops or clinical site visits without a university-sanctioned reason for their absence, will see their final course mark reduced by 10%. Please refer to the section on attendance in the Rules and Regulations guide.

Right to Submit in (English or in) French: 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. (approved by Senate on 21 January 2009)

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. Assignments submitted late will receive a penalty of 2% per day late, including week-ends.

Learning environment: As instructors of this course we endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with us and the *Office for Students with Disabilities*, 514-398-6009. Please contact the course coordinators to discuss your situation.

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. Please refer to **Code of Professional Conduct for Physical Therapy Students** http://www.mcgill.ca/spot/programs/pt/bsc-rehabilitation-science under Student Information

Technology in class: Refrain from using your instructional electronic tools (eg: laptop, tablets or cellphone) for social purposes in class. Be respectful of the clinical environment during clinical sites visits and do not use cellphones, tablets, laptops during a site visit.

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