# POTH 455 NEUROPHYSIOLOGY

**Credits:** 3

**Prerequisites**: PHGY209 Mammalian Physiology 1 – 3 credits and PHGY210 Mammalian Physiology 2 – 3 credits or an equivalent knowledge base as judged by the professors.

**Coordinator:** Philippe Archambault
Davis House, D 34B
514-398-7323
philippe.archambault@mcgill.ca

Marie-Hélène Boudrias
Hosmer House, H 206
514-398-5457
mh.boudrias@mcgill.ca

**Course Objective:** To provide the student with neurophysiological principles, concepts and mechanisms underlying normal and pathological functioning of the individual. These principles will be illustrated by reference to normal brain functions in animals and man as well as through illustrations of the effects of their disruption in diseases and other conditions that compromise the normal functioning of the nervous system. At the end of this course, the student will understand the function of major brain structures and will have learned signs and symptoms of some important neurological disease processes that illustrate principles of brain function.

**Course Structure:** Sessions will consist of didactic lectures and sessions that use case histories, student presentations and discussion questions to link neurophysiological principles to neurological conditions.

**Student Learning Objectives:** Upon completion of this course the students will be able to:

*Expert*

1. **Describe** neurophysiological concepts, principles and mechanisms underlying normal functioning and **explain** their relationships to normal and pathological functioning of the individual
2. **Identify** key components of the etiology, the epidemiology and the clinical characteristics of common neurological conditions associated with malfunctioning of brain structures and **appreciate** factors leading to a differential diagnosis
3. **Identify** key components of the medical treatment, surgical interventions and rehabilitation associated with common neurological conditions and

**understand** the impact of such treatment on the functional outcome of clients

*Communicator*

4. **Employ** effective and appropriate verbal and nonverbal communication with lay public, peers and educators

*Collaborator*

5. **Establish** and **maintain** interprofessional and intraprofessional relationships while understanding the roles and responsibilities of team members

*Scholarly Practitioner*

6. **Organize** available information about the neurological conditions presented and **select** information that is potentially important in regard to their needs as future rehabilitation specialists
7. **Apply** basic literature search and reporting principles

**Why you should study this course?**

Although you may not frequently be asked to give a lecture on the neurophysiology or the diseases of the brain, you will be placed in situations where a significant knowledge of neurophysiology and neurological conditions will be helpful. For example, in your profession you will participate in Grand Rounds or in In-Service Rounds where the neural basis of a patient's disorder will be discussed. As well, you will participate in team meetings where the advantages and disadvantages of different treatment modalities will be evaluated on the basis of their expected effects upon the nervous system. As a healthcare professional, you will be called upon frequently to explain to a client or to his or her family what is wrong with an individual's nervous system and what the prognosis for recovery is. Your ability to participate fully as a clinician depends upon your understanding of how the brain works and how it responds to disease processes.

**Required Course Materials:**

Purves, D, Augustine G.J., Fitzpatrick D, Hall W.C., Lamantia A-S, McNamara J.O., Williams S.M. (2012) *Neuroscience (*5th ed) Sinauer Associates: Sunderland, MA.

Plus assigned readings.

**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:**

| Assignments | Description | % |
|---|---|---|
| 1. Midterm Quiz | scheduled early in the course | 20% |
| 2. Final Exam | to be scheduled during exam period | 35% |
| 3. Assignments | Preparation for clinical presentations:<br>▪ Online (myCourses) quizzes (10% of final mark)<br>▪ Self-learning report (10% of final mark)<br><br>Group project:<br>▪ Oral (10% of final mark)<br>▪ Written(10% of final mark)<br>▪ Peer Evaluation and Participation (5% of final mark) | 45% |

**Special Requirements for Course Completion and Program Continuation:** In order to pass the course, a grade of at least C+ (60%) must be obtained as a total course mark. A supplemental exam is permitted in this course. Please refer to the appropriate section in the Health Sciences Calendar on University regulations regarding final and supplemental examinations. This course falls under the regulations concerning individual and group evaluation. Please refer to the section on marks in the Rules and Regulations for Student Evaluation and Promotion of the Course Guides. The modalities used for remedial work will be determined by the instructors on a per case basis.

**Plagiarism/Academic Integrity:** [Amended by Senate on April 17, 2013]**:** McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures.

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires.

**Right to submit in English or French written work that is to be graded**: In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded, 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)

**Attendance:** The instructors reserve the right to request attendance in classes where student participation is expected.

**Consequences of not completing assignments as requested:** Late submissions will be penalized 5% per day, including weekends.

**Dress Code:** Professionalism with respect to dressing is encouraged throughout the course of the semester. It is each student's responsibility to have appropriate attire during all class assignments and learning activities.

**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.

**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, FB, sms). Your cell phone should be on silence during class time and phone calls should only take place during the break or after class.

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