

The University of Western Ontario  
School of Health Studies

**Rehabilitation Sciences 3062B**  
**Functional Neuroscience in Special Populations**  
**Course Outline**  
**Winter, 2019**

**Instructor:** Dr. Susan Hunter BSc, BScPT, PhD

**Email:** [susan.hunter@uwo.ca](mailto:susan.hunter@uwo.ca)

**Office Room Number:** Room 1408, Elborn College

**Office Hours:** By appointment

**Lecture Times and Location:** Wednesday evenings 6:30 pm – 9:30 pm HSB-35

**Prerequisites**

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites".

**1.0 COURSE OUTLINE**

This course will focus on the neuroscience related to major functions that are the focus of rehabilitation practice (e.g. postural control, locomotion) as well as prevalent neurological conditions that are commonly treated by rehabilitation therapists.

The course is broken up into two sections. The first section of the course will cover the relevant anatomy and physiology of the nervous system. This section is supported by opportunities to see prepared specimens of the brain and spinal cord. The second section will focus on neurological diseases and conditions.

The methods of evaluation in this course are described in detail in Section 3.0 below and will include a midterm, anatomy laboratory quiz, group project and a final exam.

**Course Objectives**

1. To introduce students to the anatomical and functional arrangements of the nervous system at all levels, from cell to systems.
2. To introduce the neurophysiological basis for functions that are the main focus of rehabilitation interventions.
3. To introduce major neurological disorders and diseases commonly treated by rehabilitation therapists with an emphasis on issues related to rehabilitation and

## **Neuroanatomy Laboratory Sessions**

The laboratory session will be 1.5 hours in length and will run once during the designated course lecture time on January 16, 2018. The lab session will be held in the Anatatorium (HSB 322). For the lab, half of the class will attend one session (6:30pm to 7:50pm) and the remaining half will attend the second session (8 pm to 9:20pm). You will be **randomly assigned by the course coordinator to one of the sessions**. The assignment will be posted on OWL. **You must attend the session to which you are assigned due to a limited number of seating in the lecture room.**

## **2.0 COURSE MATERIALS**

There is no required textbook for this course. All materials related to the class will be posted on the OWL website for the course. The following text is a recommended resource: Lundy-Ekman L. Neuroscience: fundamentals for rehabilitation. 4<sup>th</sup> ed. St. Louis, MO; Elsevier Saunders, 2013. ([WL102.LL962n 2013](#))

All students need to use OWL to access resources used in this course such as Power Point handouts for lectures, additional handouts and assigned readings. Students are responsible for checking OWL for this course for readings, handouts, lectures, updates or changes to the schedule. Information or materials not posted on OWL 24 hours in advance of class time will be provided by the course instructor in class. Note that the course instructor will not answer email in OWL. Please contact the instructor by email for difficulties accessing OWL.

### **2.1 Use of Electronic Devices**

**During Exams:** Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any of the following electronic devices during ANY of the tests, quizzes, midterms, examinations, or other in-class evaluations: cellphones, smart phones, smart watches, smart glasses, audio players or recorders of any sort, video cameras, video games, DVD players, televisions, laptop/notebook/netbook computers, flashlights or laser pointers.

**During Lectures and Tutorials:** Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class. Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.

### **3.0 METHODS OF EVALUATION**

Mid-term exam	40%
Lab quiz	15%
Final exam	45%

NOTE: your final grade will come from the registrar, not the course instructor.

**An overall mark of 60% is required to pass this course.**

#### **Examinations**

In this course there will be one in-class mid-term test and a final exam during the final examination period in April. Questions on the exams will consist of computer-marked multiple-choice responses. These exams are designed to assess your knowledge of all materials and concepts identified and discussed in class including lectures, labs, guest lecturers and assigned readings.

Electronic devices will not be allowed during tests and examinations. For final exams, use of communication equipment (e.g., cell phones) is prohibited unless authorized by the examiner.

##### **3.1 Midterm Exam (40% of final mark)**

The midterm will be 2.0 hours long and will be held during the regular lecture hours (**February 13, 2019 from 6:30pm to 8:30pm**). Please wait outside the classroom (HSB-35) prior to the exam start time. The instructor will permit entry into the room once it has been set up for the exam. The midterm will cover all lecture, laboratory sessions and reading material up to and including February 6, 2019. The format of the exam will be multiple choice questions, matching questions, diagram labelling and case studies. Electronic devices will not be allowed during the midterm exam. The timing of this exam has been carefully considered with respect to the content and the timing of other evaluations in the course. Due to the fact that the course only runs once a week, there is no flexibility in terms of changing the date of the midterm.

##### **3.2 Neuroanatomy Laboratory Quiz (15% of final mark)**

Following the lab session, there will be a time-limited online quiz through OWL based upon the knowledge acquired during the lab session. The quiz will be multiple choice format. The quiz is **to be completed by 11pm on the day after the lab session.**

##### **3.3 Final Exam (45%)**

The final exam will be held during the final examination period in April 2019. The final exam will consist of computer-marked multiple-choice questions, matching, case studies and diagram labeling responses. The exam will cover all material from lecturers, the assigned readings and the neuroanatomy lab sessions.

## **4.0 UNIVERSITY POLICIES**

### **Student Code of Conduct**

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at The University of Western Ontario, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed, and set out the disciplinary procedures that the University will follow. For more information, visit <http://www.uwo.ca/univsec/pdf/board/code.pdf>.

Students are expected to attend all classes, arrive on time for class, **read assigned readings prior to class**, participate in class discussion, make a genuine contribution to any group activities and respect the opinions of others in the learning process. **Cell phones are to be turned off during scheduled class time.**

### **English Proficiency for the Assignment of Grades**

Visit the website [http://www.uwo.ca/univsec/pdf/academic\\_policies/exam/english.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/exam/english.pdf)

### **Accommodation for Medical Illness or Non-Medical Absences**

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)

The University recognizes that a student's ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. Illness may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. The University further recognizes that medical situations are deeply personal and respects the need for privacy and confidentiality in these matters. However, in order to ensure fairness and consistency for all students, academic accommodation for work representing 10% or more of the student's overall grade in the course shall be granted only in those cases where there is documentation indicating that the student was seriously affected by illness and could not reasonably be expected to meet his/her academic responsibilities.

A UWO Student Medical Certificate (SMC) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic. An SMC can be downloaded under the Medical Documentation heading of the following website:  
[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

Documentation is required for non-medical absences where the course work missed is more than 10% of the overall grade. Students may contact their Faculty Academic Counselling Office for what documentation is needed.

Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. Students must follow up with their professors and their Academic Counselling office in a timely manner. Documentation for any request for accommodation shall be submitted, as

soon as possible, to the appropriate Academic Counselling Office of the student's Faculty of registration. For BHSc students, you may go to the School of Health Studies Office in HSB room 222.

### **Statement on Academic Offences**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

### **Support Services**

There are various support services around campus and these include, but are not limited to:

1. Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>
2. Student Health -- <http://www.shs.uwo.ca/student/studenthealthservices.html>
3. Registrar's Office -- <http://www.registrar.uwo.ca/>
4. Ombuds Office -- <http://www.uwo.ca/ombuds/>

### **Health & Wellness**

As part of a successful undergraduate experience at Western, we encourage you to make your health and wellness a priority. Western provides several on-campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your degree. For example, to support physical activity, all students receive membership in Western's Campus Recreation Centre as part of their registration fees. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page (<http://www.music.uwo.ca/>), or the McIntosh Gallery (<http://www.mcintoshgallery.ca/>). Further information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

If you are in emotional or mental distress should refer to Mental Health@Western (<http://www.uwo.ca/uwocom/mentalhealth/>) for a complete list of options about how to obtain help. To help you learn more about mental health, Western has developed an interactive mental health learning module, found here:  
[https://uwo.ca/health/mental\\_wellbeing/education/module.html](https://uwo.ca/health/mental_wellbeing/education/module.html) .

## **University Academic Grades**

The university-wide descriptor of the meaning of letter grades, as approved by Senate:

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable.
F	below 50	Fail

It is expected that the grades for this course will fall between, Year 3: 74-78 (elective) and Year 4: 74-80. In the event that the course average falls outside this range, a constant may be added (or subtracted) from each student's grade, by the instructor, to bring the class average in line with school policy.

## **SCHEDULE OF KEY DATES AND TOPICS**

**Information regarding any assigned readings will be posted on OWL and are to be read BEFORE class.**

### **5.0 LECTURE SCHEDULE – subject to change**

<b>Week</b>	<b>Date</b>	<b>Topic</b>
<b>1</b>	January 9, 2019	Introduction to the nervous system
<b>2</b>	January 16, 2019	Lab
<b>3</b>	January 23, 2019	Peripheral Nervous System Spinal Cord
<b>4</b>	January 30, 2019	Brainstem Cerebellum
<b>5</b>	February 6, 2019	Cerebrum Motor and somatosensory system
<b>6</b>	February 13, 2019	<b>MIDTERM (in class)</b>
<b>READING WEEK (no class)</b> February 18-22, 2019		
<b>7</b>	February 27, 2019	Stroke
<b>8</b>	March 6, 2019	Dementia
<b>9</b>	March 13, 2019	Spinal Cord Injury
<b>10</b>	March 20, 2019	Cerebral Palsy
<b>11</b>	March 27, 2019	Acquired Brain Injury
<b>12</b>	April 3, 2019	Parkinson's Disease Multiple Sclerosis