



RS 3062b

COURSE OUTLINE

Functional Neuroscience for Special Populations

School of Health Studies
Rehabilitation Sciences
2011

Course Coordinator & Instructor:

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1.0 COURSE INFORMATION

1.1 Prerequisites

The prerequisites for this course are Biology 1222 or 1223 or Physiology 1021 or equivalent; Health Sciences 2300A/B or Kinesiology 2222A/B or Anatomy and Cell Biology 2221; Registration in the Honours Specialization, Major or Minor modules in Rehabilitation Sciences. It is the student's responsibility to ensure that they have the necessary prerequisites for this course. If you do not have these prerequisites (or special written permission to take the course), you are not eligible to take this course and you may be removed from this course and it will be deleted from your record. Taking a course without the prerequisite is not grounds for appeal.

1.2 Course Outline

There are 3 lecture hours per week: **Wednesdays, 9:30 to 12:30**. Lectures will be held in room 9 of the Health Sciences Building (HSB). This course will also feature 2 anatomy laboratory sessions (location TBA) and 2 community volunteer classroom visits. These will be held during the regular lecture time.

The course is broken up into two sections. The first section of the course will cover the anatomy and physiology of the nervous system. This section is supported by opportunities to see prepared specimens of the brain and spinal cord (taught by Dr. Dan Belliveau). This first section serves as the foundation for the second part which will examine some of the major neurological diseases and conditions. This section of the course will be supported by an opportunity to listen to first-hand accounts of living with a neurological condition from community volunteers.

The methods of evaluation in this course are described in detail in section 3.0 below and will include a midterm, quizzes on anatomy laboratory quizzes, an essay and a final exam.

All concerns regarding the course should be directed to the course coordinator. Questions specific to content covered in a lecture or a laboratory session should be directed to the instructor who taught the content.

1.3 Neuroanatomy Laboratory Sessions

The laboratory sessions will be 1.5 hours in length and will run twice during the designated course lecture time. The lab sessions will be held in the Anatatorium (HSB 322). Half of the class will attend one session (9:30am to 11:00am) and the remaining half will attend the second session (11:00am-12:30pm). You will be assigned by the course coordinator to one of the sessions. These assignments will be posted on WebCT. You must attend the session to which you are assigned. The materials to be used during the lab session are limited and keeping the attendance numbers down will ensure that everyone has access to them.

1.4 Course Objectives

- 1.4.a. To introduce students to the anatomical and functional arrangements of the nervous system at all levels, from cell to systems.
- 1.4.b. To introduce the major neurological disorders and diseases with an emphasis on issues related to rehabilitation and recovery.
- 1.4.c. To provide students with an opportunity to learn from and interact with individuals who are living with a neurological condition.

2.0 INSTRUCTOR INFORMATION

2.1 Course coordinator and instructor

Kara Patterson PhD, PT

Assistant Professor, School of Physical Therapy

Office: Elborn College, Room 1498A

Telephone: 519-661-2111 x88845

Email: kara.patterson@uwo.ca

Office hours are by appointment. If you wish to meet, please email me with 3 dates and times that work for your schedule. I will email you to let you know which of the three options work with my schedule. Please note that my office is in Elborn College which is at the south end of campus (Sarnia Road & Western Road). Keep in mind the time required for travelling when you suggest possible times to meet.

2.2 Course instructor

Dan Belliveau PhD

Associate Professor and Undergraduate Chair

Department of Anatomy and Cell Biology

School of Health Studies

Office: Dental Sciences Building, Room 000079

Telephone: 519-661-2111 x86830

Email: dbellive@uwo.ca

3.0 METHODS OF EVALUATION

The following is a breakdown of the evaluations in this course.

Evaluation	% of Course Mark	Description	Due Date
Midterm Examination	30%	Up to and including the neuroanatomy lab session on February 9, 2011. Format includes multiple choice, matching and short answer questions.	February 16, 2011 9:30-11:30am
Neuroanatomy Lab Quizzes	10%	Administered through WebCT. Two multiple choice quizzes worth 5% each.	At 11pm on same day as lab session
Neuroplasticity Report	20%	Written report for rehabilitation therapists about neuroplasticity with respect to one of two conditions: stroke or spinal cord injury. Submitted through WebCT	March 30, 2011 at 9:30am.
Final Examination	40%	This is a cumulative final. Format includes multiple choice, matching and short answer questions.	April 10-30 Exact day & time to be set by Registrar's Office

3.1 Midterm Exam (30% of final mark)

The midterm will be 2 hours long and will be held during the regular lecture hours (February 16, 2011, 9:30-11:30am). Please wait outside the classroom (HSB 9) 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 the second neuroanatomy session on February 9, 2011. The format of the exam will be multiple choice questions, matching questions and short answer questions. Electronic devices will not be allowed during the midterm exam.

3.2 Neuroanatomy Laboratory Quizzes (10% of final mark)

Following each of the two lab sessions, there will be a time-limited WebCT quiz based upon the knowledge acquired during the lab session. The quiz will be multiple choice format. The quizzes are to be completed by 11pm on the day of the lab session.

3.3 Neuroplasticity Report (20% of final mark)

The concept of neuroplasticity is relatively new to the field of neuroscience. The introduction of this concept has had a profound impact on the field of rehabilitation and how therapists approach the treatment of individuals with neurological disorders.

Students will write a report that will summarize the major concepts of neuroplasticity with respect to one of two conditions: stroke or spinal cord injury (your choice). The report should be written as though the report will be read by a rehabilitation therapist (e.g. physiotherapist, occupational therapist, speech therapist) not a university professor! In other words, imagine your report is to be distributed to rehabilitation therapists. It should update the therapist on 1) the

current research regarding neuroplastic changes that occur after a person has sustained the condition you selected (i.e. stroke or spinal cord injury) and 2) scientific evidence of the effectiveness of therapeutic approaches based on the principles of neuroplasticity for the condition chosen.

The references should be in APA format. A minimum of five (5) references must be used. The references can be from primary articles, review articles, textbooks and/or manuals. You may include **no more than 1 reputable website as a reference** (e.g. Heart and Stroke Foundation of Canada, Rick Hansen Foundation, Society for Neuroscience).

The report must be **1000 words in length**, not including the title page, references and any figures, tables and/or diagrams. Reports must be typed and double spaced. It is due at the beginning of class (9:30am) on **Wednesday, March 30, 2011. Late reports will be penalized by 1% off the assigned mark per late hour**. Please submit your report as an electronic file attachment through WebCT.

If you require assistance with the research for or writing of this report, please note the following resources available to Western Students. The Student Development Centre offers both one-on-one appointments and drop-in services to assist you with academic writing. You can find out more at <http://www.sdc.uwo.ca/writing/>. In addition, Western Libraries offer assistance with student research needs. You can find out more about this at
<http://www.lib.uwo.ca/services/research.html>

3.4 Final Examination (40% of final mark)

The final exam is **cumulative** and will cover all content covered in the lectures, the textbook and the neuroanatomy lab sessions. The format will be multiple choice, matching and short answer questions. The exam will be held during the university final examination period and so the date, time and place will be set by the Registrar's Office. Electronic devices will not be allowed during the final exam.

3.5 Make-up Examinations and Accommodation for Medical Illness

Only under exceptional circumstances will permission be granted for writing an exam on an alternate date. If the exam was missed due to illness, proper documentation from the University of Western Ontario Student Health Services, dated the day of the exam must be provided as documentation. Please refer to the following website for the Policy on Accommodation for Medical Illness: <https://studentservices.uwo.ca/secure/index.cfm>

3.6 Computer Checking of Exams and Written Reports

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.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system.

Use of the services is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>)."

4.0 EXPECTATIONS

The most effective learning takes place in an open, safe and respectful environment. We are all responsible for creating this environment. You can expect me to start and end class on time and answer your questions to the best of my ability. I try to encourage questions and discussion during lectures. If I cannot answer your questions in class, I will put every effort in returning an answer during the next class.

I expect you to be on time for class, respect the instructor and your classmates when sharing an idea in class, and listen without disturbing others in class (e.g. talking while others are talking, texting, emailing or other on-line activities). Community volunteers will be coming to class to discuss some very personal experiences. Please show them the respect and consideration due to them when listening to their stories and asking them questions.

5.0 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 website:
<http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>

6.0 COURSE RESOURCES AND MATERIALS

This course and all related materials will be distributed through the course website on WebCT. This includes (but is not limited to) available lecture materials, assigned readings, anatomy lab session materials and lab quizzes.

The required textbook for this course is:

Lundy-Ekman, Laurie. *Neuroscience. Fundamentals for Rehabilitation.* (3rd edition). Elsevier Saunders. 2007.

7.0 LECTURE SCHEDULE (subject to change)

	Date	Topic	Text chapter/ Reading
1	January 5, 2011	Introduction to the course Introduction to neuroscience Parts & Structure of the Nervous System	1
2	January 12, 2011	Development of the Nervous System Peripheral nervous system Spinal region	5 11 12
3	January 19, 2011	Cranial nerves Brainstem Cerebrum	13 14 16
4	January 26, 2011	Anatomy Lab session 1: cerebrum, meninges, ventricles, brainstem, spinal cord Held in the Anatatorium (HSB 322)	
5	February 2, 2011	Electrophysiological properties of cells Synapses and synaptic transmission Neuroplasticity	2 3 4
6	February 9, 2011	Anatomy Lab session 2: thalamus, basal ganglia, connections, blood supply Held in the Anatatorium (HSB 322)	
7	February 16, 2011	MIDTERM	
	February 23, 2011	Reading week, no classes	
8	March 2, 2011	Autonomic nervous system Vestibular & visual systems	8 15
9	March 9, 2011	Somatosensory system Motor system	6 9 & 10
10	March 16, 2011	Rehabilitation of Neurological Populations Traumatic Brain Injury Spinal Cord Injury	TBA
11	March 23, 2011	Stroke Community Volunteer Visit 1 (TBI)	TBA
12	March 30, 2011	Amyotrophic Lateral Sclerosis (ALS) Community Volunteer Visit 2 (SCI)	TBA
13	April 6, 2011	Alzheimer's disease Parkinson's disease Multiple sclerosis	TBA