

**KINESIOLOGY AND HEALTH SCIENCE – York University**  
**KINE 4500 3.0 - The Neural Control of Movement**

**Winter 2014**

**Course learning objectives:** This course reviews fundamental concepts and current issues in how the brain controls movement, and the effects of dysfunction and disease. Topics will include looking, reaching, posture, walking, complex skill coordination and motor learning. The changes in behaviour associated with development as well as brain damage and disease, and current approaches to treatment and rehabilitation will also be studied.

**Specific learning objectives:**

- describe how the brain controls particular types of movements, particularly the neural activity and structures involved in controlling and adapting these movements
- describe and compare key principles/features of motor control and motor learning
- describe how these types of movements are affected by through learning, development and damage to the brain

**Prerequisites:** AS/SC/KINE 3020.03 or permission of Course Director  
**(Degree credit exclusion:** AS/SC/PHED 4500.03)

**Course Directors:** Denise Henriques  
1012G CSEB  
736-2100, ext. 77215  
Office hours: By appointment  
[deniseh@yorku.ca](mailto:deniseh@yorku.ca)

Lauren Sergio  
2032 Sherman Health Science Building  
(Mailbox: 357 Bethune College)  
736-2100, ext. 33641  
[lsergio@yorku.ca](mailto:lsergio@yorku.ca)

**Course website:** This course is run through moodle.

**Lectures:** January 6<sup>th</sup> – April 4<sup>th</sup>, 2014  
Section M: 11:30 - 1:00 p.m. Tuesdays & Thursdays SC 216  
Section N: 1:00-2:30 p.m. Tuesdays & Thursdays SC 216

**Course reader:** Course notes and reading list will be posted on Moodle.

<b>Course Evaluation:</b>	Midterm	Feb 27 <sup>th</sup>	50%
	Term Paper* (due March 27 <sup>th</sup> ) OR		
	Class Presentation (April 1 <sup>st</sup> and 3 <sup>rd</sup> )		20%
	Final Exam (non-cumulative): exam period		30%

- The deadline for handing in the term paper or presentation material is March 27<sup>th</sup>. There will be absolutely no extension beyond this date.
- If you opt to give a class presentation (you can't also write a paper), the day of your presentation will be scheduled during class in late March/early April.

KINESIOLOGY AND HEALTH SCIENCE – York University  
KINE 4500 3.0 - The Neural Control of Movement

CLASS SCHEDULE: Winter 2014

Date	Topic
Jan 7,	Introduction to the neural control of movement
Jan 9, 14, 16	Eye movements, vestibular system
Jan 16, 21	Posture
Jan 23, 28	Locomotion
Jan 30, Feb 4, 6	Arm movements
Feb 6	Sequential movements
Feb 11,13	Motor learning
Feb 18, 20	Reading week (no classes)
Feb 25	Film: The baby's brain
Feb 27	Mid-term
March 4	Speech <b><i>Term paper &amp; presentation abstracts and references due March 6.</i></b>
March 6	Effects of aging on performance
March 11	Motor Dysfunction I: Motor unit and myopathic disease
March 13	Motor Dysfunction II: Spinal cord injury and subcortical motor disorders
March 18, 20	Motor Dysfunction III: Concussion, acquired brain injury, epilepsy
March 25	Film: Head Games
March 27	Motor Dysfunction IV: Stroke and SCI rehabilitation, parietal syndromes, dementia & cognitive-motor ability
April 1	Finish lecture material; presentations
April 3	Q&A, Presentations

**\*\*TERM PAPERS & PRESENTATION SLIDES DUE MARCH 27th\*\***

*Note A: Any extensions for projects must be approved by the instructor prior to the due date.*

*Late reports/assignments will be penalised (10% per day). This also applied for abstract and reference due on March 6<sup>th</sup>.*

**KINESIOLOGY AND HEALTH SCIENCE – York University**  
**KINE 4500 3.0 - The Neural Control of Movement**

**TERM PAPER OR CLASS PRESENTATION OPTION (worth 20% of final mark).**

You have the option to do a class presentation or a paper for the class addressing one of the questions listed below. If you are writing a paper, an email copy of the paper is due just before class on March 27<sup>th</sup>. If you are giving a presentation, you will be scheduled to present your talk either April 1<sup>st</sup> or April 3<sup>rd</sup>. Either way, you have to email a copy of the presentation before class on March 27<sup>th</sup>. Note that there are a limited number of presentation times available; Presentation slots will be given on a first-come first-serve basis.

You need to choose the question you wish to address in your paper or presentations and write a short abstract/summary AND list the 3-4 articles you will be using in your presentation/paper – this is due March 6<sup>th</sup> (by email). You can only use peer-reviewed articles that can be found on [www.pubmed.com](http://www.pubmed.com). Uncredited internet sources are NOT acceptable (however online scientific journals are). If I can't find your article on [www.pubmed.com](http://www.pubmed.com) – then it is not appropriate for your paper or presentation.

\*\* You have an opportunity to receive feedback on a draft of the outline for your presentation. Last day to submit this is March 15<sup>th</sup> to be returned within a week. You can submit this as an email attachment.

The paper should be 6-8 typewritten pages, excluding reference and figures. Use 1" margins with double spacing. Presentations should be 15-20 min in length.

You will be assessed on how well you answer the questions based on your understanding (and choice of) articles that you have picked on this topic. You will also be assessed on the organization of the paper, the cogency of your arguments, and your writing/presentation style. Please follow the American Psychological Association reference system, and include an APA style abstract at the beginning of the paper.

**Assignment Submission:**

***All course essays must be submitted in hard paper copy or as an e-mail attachment.***

\*\*You are also required to carry out one of the following:

**Option 1 - TurnItIn:** You are required to submit your final paper into TurnItIn (on moodle) by the same date the assignment is due. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

**Option 2 - Alternative to TurnItIn:** If you do not want to use Turnitin, please let the course director know in advance. You will be required to submit written a report on how you completed your essay (required contents below), along with detailed annotated bibliography. The report and bibliography must be submitted with your assignment when it is due. You will also email an electronic copy of each report and bibliography (with hyperlinked URLs in it) to the course director. You may also be asked to take an oral examination on the topic of your written assignments directed at issues of originality.

The written report must contain the following information, as well as anything else you consider useful to the course director on the issue of academic integrity:

1. A list of the documents and other sources you consulted to understand your topic, along with the dates you first used each of them.

**KINESIOLOGY AND HEALTH SCIENCE – York University**  
**KINE 4500 3.0 - The Neural Control of Movement**

2. An explanation of how those documents and sources led you to the other documents and sources you used.
3. An explanation of which of the sources you used had the most influence on your understanding of the topic of your assignment, and how you used them.

Proper academic performance depends on students doing their work not only well, but on time. Accordingly, the essay for this course must be received on the due date (MARCH 27, 2014) specified for the assignment.

**QUESTIONS FOR PAPER/PRESENTATION: PICK ONLY ONE QUESTION. Refer to peer-reviewed articles (found on pubmed.com) to support your answer.**

What is the effect of Parkinson's disease on movements of the eyes?

What is the effect of Parkinson's disease on arm movements?

What is the effect of Parkinson's disease on posture?

What is the effect of Parkinson's disease on locomotion?

What is the effect of Parkinson's disease on motor learning?

What is the effect of damage to the cerebellum on movements of the eyes?

What is the effect of damage to the cerebellum on arm movements?

What is the effect of damage to the cerebellum on posture?

What is the effect of damage to the cerebellum on locomotion?

What is the effect of damage to the cerebellum on motor learning?

What are the current treatments for recovery from spinal cord injury?

What are the current therapies for motor rehabilitation following stroke?

What are the effects of deafferentation on movement?

What is the latest technology for neuroprosthetics/neuromuscular prosthetics?

What are the current treatments for traumatic brain injury?

What are the effects of dementia on motor coordination?

**KINESIOLOGY AND HEALTH SCIENCE – York University**  
**KINE 4500 3.0 - The Neural Control of Movement**

**Senate Policy on Academic Dishonesty**

- Cheating is the attempt to gain an improper advantage in an academic evaluation. Forms of cheating include:
  - Obtaining a copy of an examination before it is officially available or learning an examination question before it is officially available;
  - Copying another person's answer to an examination question;
  - Consulting an unauthorized source during an examination;
  - Obtaining assistance by means of documentary, electronic or other aids which are not approved by the instructor;
  - Changing a score or a record of an examination result;
  - **Submitting the work one has done for one class or project to a second class, or as a second project, without the prior informed consent of the relevant instructors;**
  - Submitting work prepared in collaboration with another or other member(s) of a class, when collaborative work on a project has not been authorized by the instructor;
  - Submitting work prepared in whole or in part by another person and representing that work as one's own;
  - **Offering for sale essays or other assignments, in whole or in part, with the expectation that these works will be submitted by a student for appraisal;**
  - Preparing work in whole or in part, with the expectation that this work will be submitted by a student for appraisal.

DO NOT CHOOSE A TOPIC FOR YOUR PAPER OR POSTER PRESENTATION THAT YOU HAVE USED (OR WILL BE USING THIS SEMESTER) FOR ANOTHER COURSE. THIS IS ACADEMIC MISCONDUCT AND WILL NOT BE TOLERATED.

**RE-EVALUATION POLICY**

---

During the term:

Any requests for remarking of assignments or in-class tests must be received by the course instructors within 7 days of the item's mark being posted, along with the "Evaluation item remark request" form, which can be found on the course website. Please note that your mark may be **raised, lowered, or confirmed**.

Re-appraisal of a final grade:

Any requests for re-appraisal of a final mark must be received by the course instructors within 7 days of the final grade posting, along with the "Evaluation item remark request" form, which can be found on the course website. Please note that your mark may be **raised, lowered, or confirmed**. If the result is still unsatisfactory, requests for a reappraisal of the final grade for a completed course are the responsibility of the Undergraduate Director. You must submit in writing a formal request for a **final grade reappraisal** to the KINE undergraduate Office. The 'Reappraisal of Final Grades' form can be picked up at the KINE Undergraduate Office.

For further details: [www.registrar.yorku.ca/policies/grade.htm](http://www.registrar.yorku.ca/policies/grade.htm)

## **IMPORTANT GENERAL COURSE INFORMATION FOR STUDENTS**

### **Academic Honesty and Integrity**

York students are required to maintain high standards of academic integrity and are subject to the Senate Policy on Academic Honesty

(<http://www.yorku.ca/secretariat/legislation/senate/acadhonesty.htm>).

There is also an academic integrity website with complete information about academic honesty. Students are expected to review the materials on the Academic Integrity website

(<http://www.yorku.ca/academicintegrity>).

### **Access/Disability**

York provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials.

It is the student's responsibility to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Failure to make these arrangements may jeopardize your opportunity to receive academic accommodations.

Additional information is available at [www.yorku.ca/disabilityservices](http://www.yorku.ca/disabilityservices) or from disability service providers:

- *Office for Persons with Disabilities: N108 Ross, 416-736-5140, [www.yorku.ca/opd](http://www.yorku.ca/opd)*
- *Learning and Psychiatric Disabilities Programs - Counselling & Development Centre: 130 BSB, 416-736-5297, [www.yorku.ca/cdc](http://www.yorku.ca/cdc)*
- *Atkinson students - Atkinson Counselling & Supervision Centre: 114 Atkinson, 416-736- 5225, [www.yorku.ca/atkcsc](http://www.yorku.ca/atkcsc)*
- *Glendon students - Glendon Counselling & Career Centre: Glendon Hall 111, 416-487- 6709, [www.glendon.yorku.ca/counselling](http://www.glendon.yorku.ca/counselling)*

### **Religious Observance Accommodation**

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately.

Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

[http://www.registrar.yorku.ca/pdf/exam\\_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf)

### **Student Conduct**

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. A statement of the policy and procedures involving disruptive and/or harassing behaviour by students in academic situations is available on the York website

<http://www.yorku.ca/secretariat/legislation/senate/harass.htm>

*Please note that this information is subject to periodic update. For the most current information, please go to the CCAS webpage (see Reports, Initiatives, Documents):*

[http://www.yorku.ca/secretariat/senate\\_cte\\_main\\_pages/ccas.htm](http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm).