

School of Kinesiology  
Faculty of Health Sciences  
University of Western Ontario  
**KIN 3480 \$- Movement Neuroscience**  
**Fall 2017**

Course instructor: Dr. Matthew Heath  
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University of Western Ontario  
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Office Hours: Monday, 1:30-3:30pm. Please do not hesitate to contact me for additional hours.

Course Information:

Course Number/Name:	KIN 3480a, Movement Neuroscience
Course Meeting Information:	12:30 - 1:20 pm: M, W, and F
Location:	TH-3102
Course Website:	<a href="https://owl.uwo.ca/portal">https://owl.uwo.ca/portal</a>

Calendar Course Description:

## Course Materials:

Course materials (e.g., Course Outline, Lecture Overheads) are available via OWL & you are responsible for downloading and printing these materials. Overheads should not be considered a replacement for class lectures. Supplementary reading materials will be assigned during regular class hours and it is your responsibility to retrieve these materials at the library or via ~~e~~lectronic

assignment may still result in a grade of zero if the assignment is not completed at the specified time).

4. Under no circumstances is a computer "problem" a valid reason for a missed assignment or presentation. If you have a computer "problem" your assignment and/or presentation will be subject to normal late assignment penalties (i.e., a grade of zero for that test/assignment/presentation).
5. If you plan to miss a test or an assignment for a sanctioned university extracurricular club and/or team event you must inform the instructor (and provide official documentation) of your pending absence one week prior to the test/exam/assignment. Do not have your coach email you; you must send the email and speak to me directly. Failure to document such an absence will result in a grade of zero for the missed test or assignment.
6. Make-up tests are not rescheduled. If a student provides an authorized reason for missing a test, the percentage of their remaining tests will be re-weighted. If a test is missed without a valid reason, then a grade of zero will be applied.
7. Final Exam Accommodation: An accommodation for a final exam must be cleared via an Academic Counsellor in the School of Kinesiology.
8. If a valid reason is provided for missing the Oral Presentation deadline, then the student will be required to give their presentation on the last day of the assigned presentation period (see below for details).
9. Missing a test/assignment/presentation without a valid reason will result in a grade of zero.

#### Academic Dishonesty:

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<http://www.uwo.ca/univsec/board/code.pdf>.

In particular students are required to fully understand the term plagiarism and why protecting against this act represents an important academic process. In this class, any exam/test/assignment with an identified breach of academic misconduct (plagiarism, cheating etc.) will receive a grade of zero. Moreover, the case will be reported to the appropriate Dean or Director's Office and handled via the university-wide resolution policy (see website above for details).

#### Regarding assigned written work:

<http://www.turnitin.com>). NOTE: THIS INSTRUCTOR DOES AND NOT TEACHING ASSISTANTS DOES WILL GRADE ALL ASSIGNMENTS. HENCE, BE ABSOLUTELY CERTAIN TO PRESENT WORK WRITTEN IN YOUR OWN WORDS.

#### Regarding computer-marked multiple choice tests and exams:

Regarding oral presentations: It is your duty to ensure that assigned oral presentations represent your own original work and compilation of research ideas. That means all slides and visual information presented during your presentation should be solely created and constructed by you (see the instructor for possible exceptions). Any presentation found to contain information that is not original will receive a grade of zero and the case will be reported to the appropriate Dean or Director's Office and handled via the university-wide resolution policy.

Posting class materials (i.e., lecture notes) to an online site are subject to copyright laws as indicated by the recent Supreme Court of Canada ruling of Bill C-11 (the following is a somewhat layperson description of this ruling:

<http://www.michaelgeist.ca/content/view/6616/125/>)

### Disruptive Behavior:

To protect the rights of all students to learn in an uninterrupted setting, students are expected to conform to the instructor's standard of appropriate classroom decorum. Students who disrupt the academic process will be asked to leave class, and may be involuntarily withdrawn from the course for repeated or serious offenses (see Handbook of Scholastic Discipline for Undergraduate Students). Examples of disruptive behavior include:

1. Eating in class.
2. Entering class late or leaving early. If you ABSOLUTELY have to enter late or leave early make sure you do so via the doors at the back of the room.
3. Talking to your neighbor during class. I strongly urge you to refrain from this activity. Note: in the past students have been involuntarily withdrawn from the course due to frequent in-class talking. I will provide individual students with one warning involving in-class talking. A second offense will be reported to the Dean/Director's Office for academic sanction, or sanctions. My typical recommendation in such a case is that the student be involuntarily withdrawn from the course.
4. The usage of electronic equipment other than that specifically enhancing the learning environment is not permitted. Thus, if you are taking class notes with your computer that is fine; however, if you are observed using your computer for other purposes (e.g., internet browsing, playing computer games etc.) you may be asked to leave the class and your actions will be reported to the Dean/Director's office for academic sanction, or sanctions.
5. THE USE OF CELL PHONES/IPODS/MP3 PLAYERS ETC. IS NOT PERMITTED. PLEASE BE CERTAIN YOUR CELL PHONE HAS BEEN TURNED OFF PRIOR TO ENTERING CLASS.
6. ELECTRONIC EQUIPMENT - OF ANY KIND - IS NOT PERMITTED DURING EXAMS.
7. AUDIO AND/OR VIDEO RECORDING OF CLASS CONTENT IS NOT PERMITTED UNLESS YOU HAVE SOUGHT, AND BEEN PROVIDED, WRITTEN PERMISSION FROM THE INSTRUCTOR.

## English Proficiency for the Assignment of Grades:

Visit the website <http://www.uwo.ca/univsec/handbook/exam/english.pdf>

## 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/>

Students who are in emotional/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.

## Course Content:

I frequently supplement course lectures with required readings. Readings may be posted to OWL and will be assigned on a class-by-class basis. Also, I will frequently present materials (i.e., research articles) that are not included in lecture overheads, thus attending class is your best bet for academic success.

- A. Introduction to Movement Neuroscience
  1. Neuroscience techniques.
    - Behavioural
    - EMG
    - neuroimaging
    - TMS
    - single cell recording
- B. The Nervous System
  1. Structure and Function of the Central Nervous System
    - Cortex
    - Basal ganglia, brain stem and cerebellum
    - Spinal cord
  2. Structure and Function of Peripheral Nervous & Neuromuscular Systems
    - The motorneuron
    - The motor unit
    - Muscle spindles

<http://www.med.harvard.edu/AANLIB/home.html>

<http://www.waiting.com/brainanatomy.html>

<http://www.pbs.org/wnet/brain/3d/index.html>
- C. Cognitive-Motor and Neurobehavioral Factors in Human Movement Control
  1. Attention
  2. Memory
- D. Fundamentals of Motor Control
  1. Sensory Contributions to Motor Control
  2. Central Contributions to Motor Control

### 3. Principles of Simple Movements

#### E. Neuro-motor impariments:

1. Apraxias
2. Ataxia (cortical and cerebellar)
3. Parkinson's
4. Alzheimer's
5. Hemiballismus
6. Huntington's Disease
7. Neglect and alien hand disorder

## Bi-weekly Article Assignments (20% of Final Grade)

Every other Friday of the semester the class I will assign an original research article to review (the completed summary is due one week from the date of assignment). The article will outline a major research theme for the upcoming lecture week and will serve to facilitate class discussion. As part of this reading, you will be responsible for completing a two-page written summary of the article (Note: your write-up will not exceed a two-page specification). The format of the write-up will entail double-spacing with margins set at one-inch and will include Times New Roman 12 point font and will be double-sided (i.e., you can hand in a SINGLE sheet of paper). Your written summary will discuss not only major findings from the assigned work (i.e., methodology/technique/theoretical implications) but also address other work that has direct bearing on the assigned topic area (i.e., you will have to complete additional readings to supplement your knowledge). Moreover, your written summary will be succinct and clear and demonstrate an advanced understanding of the extant topic area. As such, summaries will be graded for the effectiveness and efficiency of writing (50% of grade) and for demonstrating competence in the topic area (50% of grade). Please be aware that any summary in which only a cursory attempt is provided at writing and/or understanding the content area will be given a grade of zero. In a nutshell, significant effort is expected in the completion of this section of the course. The topic and specific readings will be assigned on a basis of overall class ~~flow~~ <sup>flow</sup>. Tentative dates that articles will be assigned are September 15, September 29, and November 17.

## Oral Presentation

Oral presentations will begin approximately November 20<sup>th</sup> and will be 15 minutes in duration. As such, there will be approximately 15 groups and there will be three group presentations per



Presentation Evaluation: KIN 3480a

Presenter: \_\_\_\_\_ Topic: \_\_\_\_\_

Scale: 1 missing 2needs work 3satisfactory 4-good 5excellent

Organization

1. Introduction [ ]  
Presenter explains topic and subject of thesis clearly
2. Body [ ]  
Body points are simple, clear, and logically support the focus of the presentation.
3. Transitions and sequencers [ ]  
Transitions and sequencers are used to bridge major points (i.e., from one topic to another) and minor points in the presentation.
4. Visual Aids [ ]  
Visual aids clearly relate to and support the major points of the presentation.
5. Conclusions [ ]  
Presenter provides a concise summary of the major components/ramifications associated with their presentation.

Delivery

1. Speaking level [ ]  
Speaking level is loud and confident enough for the audience.
2. Pacing [ ]  
Speaking style is natural, calm, and clear. Presenter ensures the audience that they understand each point.
3. Eye Contact [ ]  
Presenter maintains continuous eye contact with the audience.
4. Gestures [ ]  
Presenter uses gestures to highlight major points.

Content

1. Well researched [ ]  
Presenter provides clear evidence of evaluation of extant research.
2. Expertise [ ]  
Presenter demonstrates developing expertise in topic area.
3. [ ]