



Western University
Faculty of Health Sciences
School of Kinesiology



KIN 3480A - Movement Neuroscience
Fall 2024

<p>Instructor: Dr. Matthew Heath Email: mheath2@uwo.ca Zoom Office Hours:</p> <p>Teaching Assistants: Lauren Giuffre: lgiuffre@uwo.ca Denait Haile: dhaile3@uwo.ca</p>	<p>Lectures: M, W, F: 12:30 pm-1:20 pm</p> <p>Instruction Mode: In person</p> <p>Location:</p>
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NOTE: All course information including grades, assignment outlines, deadlines, etc. are available via OWL.

Calendar Course Description (including prerequisites/anti-requisites):

This course is designed to provide students with an intermediary level and multi-disciplinary understanding of the movement neurosciences. Topics include nervous system structures involved in the planning, control and learning of movement, brain plasticity, and the neurocognitive principles of movement.

Prerequisite(s): Kinesiology 2230A/B, Kinesiology 2241A/B and any of the following courses: Kinesiology 1060A/B; Kinesiology 2222A/B; Health Sciences 2300A/B; the former Health Sciences 2330A/B; Nursing 1330A/B; Anatomy and Cell Biology 2200A/B.

Extra Information: 3 lecture hours per week (in-person and when required online).

You are responsible for ensuring that you have successfully completed all course pre-requisites, and that you have not taken an anti-requisite course.

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.

Copyright:

The course instructor owns the intellectual property and asserts copyright protection over any lecture video and all course materials. Accordingly, you may stream – but not download or record – lecture videos and you may not post or repurpose lecture materials (e.g., overheads, discussion questions, practice questions etc.).

Course Description:

The course begins with an overview of the methodologies used in the movement neurosciences

(e.g., EEG, fMRI, TCD) and the central nervous system structures supporting motor, cognitive and cognitive-motor processes. This course will also examine the role of movement in neuroplasticity and brain health and provide the opportunity to refine critical thinking and interpretation skills.

Learning Outcomes:

Upon completion of this course, you will be able to:

1. Identify and apply knowledge of central nervous system structure and function.
2. Understand the fundamental methodologies used in the movement neurosciences.
3. Critically evaluate and interpret research in the movement neurosciences.
4. Communicate (written & oral) effectively.
5. Engage in meaningful discussion with peers.

Required Course Material/Text:

All course materials are available via OWL. There is no textbook for this course.

Distribution of Student Load:

In-person lectures: ~1.5 hours/wk
Private study: ~2.5 hours/wk

Communication:

Office hours & appointments: If you have questions about course material or would like to discuss issues related to the course in more detail the preferred means is to discuss during instructor office hours or discuss before or after in-person lectures. It is also possible to email the instructor regarding a question; however, sending a question via email does not ensure a prompt response.

Email Policy:

Who to contact for your concerns or questions: If you have a question, please first consult this syllabus and the course website; there is a good chance your question can be answered through these resources, especially regarding course logistics or content (e.g., deadlines, assignments, and course material). You are also encouraged to use the forum on OWL to post questions to your peers and check to see if your question has already been answered. If you cannot find an answer to your question on the syllabus or course website, you may contact the instructor; however, and as indicated above, the preferred means of contact is via office hours.

Email inquiries to instructor: For all email responses, please permit a minimum of 24 hours before a response can be expected (i.e., you are unlikely to receive a response the night before a quiz/assignment and will not receive a timely response to an email sent on the weekend or holiday). It is encouraged that view any email as your chance to practice professionalism. Consider that your communication style is a direct reflection of you as a person. Hence, when sending an email include appropriate salutation and valediction and ensure proper syntax, grammar and punctuation.

Course Evaluation:

Assignment	Date	Contribution
Test 1	TBD	20%
Test 2	TBD	15%
Article Summaries	Details below	20%
Oral Presentation	TBD	20%
Final Exam	Scheduled by Registrar's Office	25%

Course Evaluation Details:

1. *Article Summaries (20%)*: Five article summaries will be assigned with each relating to a research theme arising from lectures. **You are required to submit four of the five article summaries.** You will be responsible for reading and completing a two-page written summary of the article (Note: your write-up will not exceed a two-page limit). The format of the write-up will entail double-spacing with all margins set at 2.54 cm and written via Times New Roman 12-point font. The assignment will be uploaded to OWL as a MSWORD document. Only MSWORD documents will be accepted. Your written summary is to outline the article's theoretical background (i.e., the basis for the study), methods, results and conclusions. Your summary will be succinct and clear and demonstrate your extant understanding of the article. As such, summaries will be graded for the effectiveness and efficiency of writing (~25% of grade) and for demonstrating competence in understanding theory (25%), methods/results (25%) and conclusions (25%). For theory-based articles, 50% of the grade will be based on an understanding of theory (i.e., there will be no 25% evaluation of methods/results). Article summaries are to be submitted by 4:30 pm on the due dates outlined below. Late submissions will not be evaluated. If an article summary cannot be submitted on time due to a documented academic accommodation (see details below) then an extension will be provided (i.e., it must be submitted 24 h from the end of the accommodation period).

Article Summary	Due Date
TBD	TBD

2. *Test 1 (20%)*: This test is scheduled for TBD. The test will be completed online (remote) during regular class hours (50-min duration) and will include multiple choice and short answer questions to material associated with lectures.
3. *Test 2 (15%)*: This test is scheduled for TBD. The test will be completed online (remote) during regular class hours (50-min duration) and will include multiple choice and/or short answer questions to material associated with lectures.
4. *Oral Presentation (20%)*: Oral presentations will be 15-min in duration and will be recorded and uploaded to the course OWL site (i.e., the file format must be mp4) by TBD at 4:30 pm EST. Oral presentations are group-based and are to be completed with a maximum of four members per group. The presentation will cover a pertinent or emerging area specific to the neuroscience of human movement. For example, you

can select a specific theoretical area of movement neuroscience (e.g., reaching and grasping, posture, gait) and provide a presentation of relevant and recent research in that area. Alternatively, you may select a movement disorder (e.g., apraxia, dystonia) and discuss the neuro-motor consequences associated with that disorder. The format of the presentation will entail PowerPoint slides or other similar media. Each member of the group must speak during the presentation and a relative equal amount of time should be provided to each member.

Information for your presentation should be compiled via a combination of scientific text and original research articles. I recommend PubMed to research your topic area (see web link below). I strongly discourage web-based mediums such as Wikipedia or google; these websites are not fully vetted for factual correctness.

The grading rubric for oral presentations is presented at the end of this course outline. The evaluation will be based on individual and group performance.

5. *Final Exam. (25%)*: The Final Exam is scheduled by the Registrar's Office and will include multiple choice and/or short answer responses to material associated with lectures. The exam will be completed online and in-person. **The Final Exam is non-cumulative.**

Course/University Policies

1. The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

2. 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, in the Academic Calendar (westerncalendar.uwo.ca).

Plagiarism

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to a zero on the assignment in question, a zero in this course, or your expulsion from the university. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All 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 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 service is subject to the licensing agreement, currently between Western University and Turnitin.com (www.turnitin.com).

Re-submission of Previously Graded Material

Without the explicit written permission of the instructor, you may not submit any academic work for which credit has been obtained previously, or for which credit is being sought, in another course or program of study in the University or elsewhere.

Use of Statistical Pattern Recognition on Multiple Choice Exams

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.

3. 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 electronic devices during ANY tests, quizzes, midterms, examinations, or other in-class evaluations.

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.**

Personal Response Systems (“clickers”) may be used in some classes. For those classes in which we use this technology, it is your responsibility to ensure that the device is activated and functional. You must speak with the course instructor immediately, if you have any concerns about whether or not your clicker is malfunctioning.

You must use only your own clicker. For all components of this course in which clicker records are used to compute a portion of the grade:

- The use of somebody else’s clicker in class constitutes a scholastic offence;
- The possession of a clicker belonging to another student will be interpreted as an attempt to commit a scholastic offense

4. Academic Considerations and Absences from Lectures and Assessments

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request (in writing) any necessary academic considerations at least two weeks prior to the holiday to the academic counsellors in their Home Department. Additional information is provided in the [Western Multicultural Calendar](#).

Academic Accommodation

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. Students with ongoing accommodation needs within this course are also encouraged to contact [Accessible Education](#), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found [here](#).

Academic Consideration

The University recognizes that a student's ability to meet their academic responsibilities may, on occasion, be impaired by extenuating circumstances that are medical or compassionate in nature. These extenuating circumstances may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. In all cases, students are advised to consult with the academic counsellors in their home units, at their earliest opportunity. Academic counsellors may refer students to Accessible Education for ongoing academic accommodations.

Most forms of academic consideration require documentation, and this documentation is to be submitted to academic counsellors within five (5) business days of their return to academic responsibilities. Any such documents will be retained in the student's file, and will be held in confidence in accordance with the University's Official Student Record Information Privacy Policy. Once the petition and supporting documents have been received and assessed, appropriate academic considerations shall be determined by academic counseling, in consultation with the student's instructor(s). Academic considerations may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic considerations shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete their academic responsibilities. (Note – it will not be sufficient to provide documentation indicating simply that the student “was seen for a medical reason” or “was ill.”).

Whenever possible, students who require academic considerations should provide notification and documentation in advance of due dates, examinations, etc. Under no circumstances are students expected to submit rationales for (or documentation of) any absences, to course instructors. Students are, however, required to follow-up with course instructors, in a timely fashion, to identify the ways in which the academic consideration will be implemented.

There are not make-up dates for Test 1 or 2. If you miss a test and have a documented accommodation then the value associated with the missed test will be re-weighted to the remaining test (i.e., if you miss Test 1 then Test 2 will be worth 35%, or vice versa). If you miss both tests, then the value of each test will be re-weighted to the Final Exam. All deadlines for article summaries are final and late assignments without a documented academic accommodation will not be accepted (Note: only four of the five assignments are required for submission). Oral presentations must be submitted on the specified due date and there is no exception to this deadline.

Examination Conflicts

A student completing tests or examinations with flexible submission times (e.g., where one or more evaluation is a take-home assessment) cannot request alternative arrangements unless a conflict cannot be avoided by rescheduling writing the exam to a different time within the window specified by the instructor. This applies to direct conflicts as well as “heavy load” conflicts (e.g., three exams within a 23-hour period). The student should discuss any concerns about a potential conflict and/or request academic considerations with their academic counselling unit prior to the deadline to drop a course without academic penalty

In the case of online tests and examinations, use of a “Conflict Room,” wherein student can write two proctored exams concurrently, will be interpreted as arrangements for continuous proctoring.

Per University policy, makeup examinations for final exams (i.e., during the December and April exam periods) are held on the Thursday of the first week of classes in January (for first-term courses) or on the second Thursday in May (for full courses and second-term courses), excepting when a change to this date is approved by the Associate Dean. Typical practice within the FHS is for Schools to collaborate in setting FHS special examination dates, and seek approval for these dates prior to the examination period.

5. **Contingency Plan for an In-Person Class Pivoting to 100% Online Learning**

In the event of a situation that requires this course to pivot to online content delivery, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

6. **Online Proctoring**

Tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

7. **Grades**

Where possible assignment objectives and rubrics will be posted on OWL. Generally, students can expect some form of feedback on their performance in a course before the drop date.

- November 13th, 2023 (for first term half-courses)
- November 30th, 2023 (for full-year courses)
- March 7th, 2024 (for second term half-or full year courses)

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

Rounding of Grades (for example, bumping a 79 to 80%):

This is a practice some students request. The final grade documented is the grade that you have achieved. There is no rounding to the next grade level, or ‘giving away’ of marks.

Please do not ask me to do this for you; the response will be “please review the course outline where this is presented”.

Appealing a Grade Within this Course

You have the right to appeal any grade within this course. The grounds for a grade appeal may be one or more of: medical or compassionate circumstances, extenuating circumstances beyond the student’s control, bias, inaccuracy, or unfairness. All grounds advanced in a request for relief must be supported by a clear and detailed explanation of the reasons for the request together with all supporting documentation.

Appeals generally proceed in this order:

1. Course instructor (informal consultation)
2. Department Chair (submission of written request)
3. The Dean of the Faculty (submission of written request)

In the case of perceived procedural unfairness, steps 2 and 3 are carried out within the Department and Faculty offering the course. In the case of extenuating medical or compassionate circumstances that impact on a grade, steps 2 and 3 are carried out within a student’s Home Department and Faculty.

A request for relief against a mark or grade must be initiated with the instructor as soon as possible after the mark is issued. In the event that the instructor is not available to the student, or fails to act, or if the matter is not resolved satisfactorily with the instructor, a written request for relief must be submitted to the Chair of the Department within three weeks of the date that the mark was issued. In the case of a final grade in a course, the written request for relief must be submitted to the Chair of the department by January 31st (for first-term half courses) or June 30th (for second-term half courses or full-year courses)

8. Support Services

Health and Wellness:

Information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/>) for a complete list of options about how to obtain help.

There are various support services around campus and these include, but are not limited to:
Student Development Centre -- <http://www.sdc.uwo.ca/ssd/>
Ombudsperson Office -- <http://www.uwo.ca/ombuds/>

9. 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 Western University, 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 <https://www.uwo.ca/univsec/pdf/board/code.pdf>

10. Online Etiquette

Some components of this course will involve online interactions. To ensure the best experience

for both you and your classmates, please honour the following rules of etiquette:

- please “arrive” to class on time
- please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- to minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- In order to give us optimum bandwidth and web quality, please turn off your video camera for the entire class unless you are invited to speak
- please be prepared to turn your video camera off at the instructor’s request if the internet connection becomes unstable
- unless invited by your instructor, do **not** share your screen in the meeting

The course instructor will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- if you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question
- remember to unmute your microphone and turn on your video camera before speaking
- self-identify when speaking.
- remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Use of Artificial Intelligence (AI):

Within this course, students are permitted to use AI tools exclusively for information gathering and preliminary research purposes. These tools are intended to enhance the learning experience by providing access to diverse information sources. However, it is essential that students critically evaluate the obtained information, exercise independent thinking, and engage in original research to synthesize and develop their own ideas, arguments, and perspectives. The use of AI tools can serve as a starting point for exploration, with students expected to uphold academic integrity by appropriately attributing all sources and avoiding plagiarism. Assignments and/or lab reports should reflect the student’s own thoughts and independent written work. By adhering to these guidelines, students contribute to a responsible and ethical learning environment that promotes critical thinking, independent inquiry and allows them to produce original written contributions.

Schedule (Subject to change)

Week	Topics	Schedule & Deadlines
Week 1:	Introduction	
Week 2:	Neuroscience techniques	
Week 3:	Neuroscience techniques	
Week 4:	CNS structure & function	
Week 5:	CNS structure & function	
Week 6:	NO class this week; online test	
Week 7:	CNS structure & function	
Week 8:	CNS structure & function	
Week 9:	FALL READING WEEK	
Week 10:	CNS structure & function	
Week 11:	CNS structure & function	
Week 12:	CNS structure & function	
Week 13:	Information Processing	
Week 14:	Attention & Memory	

Group Presentation Rubric

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

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. **Questions** []
Presenter readily able to address audience-based questions.

General Comments

1. **Overall strength(s) of this presentation.**
2. **Overall weakness/weaknesses of this presentation.**
3. **What could be done to significantly improve this presentation?**