

**Western University Faculty of Health Sciences
School of Kinesiology**

**KIN 9466A (Special topics Bioscience 002) – Neuromuscular Physiology
Fall 2022 (TENTATIVE SYLLABUS July 2022)**

Instructor

Dr. Charles Rice
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 Office Hours: By appointment

Calendar Course Description:

A multidisciplinary course designed to provide an advanced understanding of the cortical and spinal mechanisms contributing to human movement and the feedback control mechanisms that support its sustainability. This course will consider movement control in health and disease states and how active lifestyles promote the health of the neuromuscular system.

Format:

The course meets weekly in person (Mondays 2-5 p.m.) for a 3-hour lecture and/or seminar style class. At each class students are expected to be prepared (i.e., complete assigned readings and pre-lecture assignments) and actively participate in discussion.

Learning Outcomes:

- Explain the motor output from the spinal cord to skeletal muscles and how the anatomical organization (motor units) control voluntary contractions in various tasks and conditions.
- Compare, contrast, and critically evaluate the evidence of the role of the nervous system in the control of movement under various conditions.
- Demonstrate independent critical thinking
- Demonstrate effective and efficient oral and written communication skills.

Tentative Schedule:

Week of:	TOPICS	
Sept 12	Introduction and course overview	
Sept 19	Structure and function of motor units	
Sept 26	Motor units in short-term adaptations	
Oct 03	Motor units in long-term adaptations	
Oct 10	Thanksgiving – no class	
Oct 17	Motor units in disease states	
Oct 24	Techniques for studying motor unit structure and function	
Oct 31	Fall Reading Week	
Nov 07	Interpretation of electromyographic signals	
Nov 14	Cortical input and sensory/reflex feedback	
Nov 21	Oral presentations	
Nov 28	Oral Presentations	
Dec 05	Oral Presentations	

Evaluation, Format and Style:

1. **Participation (10%)** – Students will actively engage in classroom discussion. The basis for the classroom discussion will surround assigned readings, and general discussion of class material. Students will be required to complete a brief reading assignment for readings posted on OWL. Completion of reading assignments will count toward your participation grade and they will be **due at 5 pm on the day before each class** (*with the exception of Week 1 – Sept. 12*).
2. **Scientific Abstract and Summary Assignment (30%)** - A research paper, without an abstract, will be assigned to the class by week 3. From independent reading of the paper, each student will create an appropriate, comprehensive, and comprehensible scientific abstract of no more than 250 words double-spaced (penalty for extra words). On a second separate page each student also will write a lay summary of the paper of no more than 100 words. Finally, students will provide a brief 2-page scientific and academic critique of the study. Further details will be explained in class and posted on OWL.
Due date: 13 October
3. **Research Proposal Assignment (35%)** - Students will write a proposal for a research project aimed at answering a question related to the neuroscience of human movement. Students will select the topic and submit it for approval. A 5-page (excluding references), double-spaced paper outlining the proposal will be submitted through OWL. The paper will include background information supporting the proposal, a statement of the aim(s) and hypothesis(es), a description of the methods, and a description of the expected outcomes, and a list of references. A minimum of 5 primary, peer-reviewed research articles must be included. Further instructions and grading rubric will be provided on OWL. **Due date: 17 November**
4. **Oral Presentation (25%)** - Students will provide a 5-7 minute presentation of their research proposal assignment, using the information outlined in the paper. Presentations will include background information supporting the proposal, a statement of the aim(s) and hypothesis(es), a description of the methods, and a description of the expected outcomes. Each presentation will be evaluated by your peers and your final mark will be a combination of the peer evaluations and by Dr. Rice. Further instructions and grading rubric will be provided on OWL. **Presentations dates: Weeks of 21 Nov, 28 Nov and Dec 05.**

Course/University Policies

1. Academic offences:

They 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_grad.pdf

A) Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar). 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 service is subject to the licensing agreement, currently between Western University and Turnitin.com
<http://www.turnitin.com>

2. 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.

3. Support Services

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

- *Student Development Centre* -- <http://www.sdc.uwo.ca/ssd/>
- *Student Health & Wellness* -- <http://www.health.uwo.ca/>
- *Registrar's Office* -- <http://www.registrar.uwo.ca/>
- *Ombudsperson Office* -- <http://www.uwo.ca/ombuds/>

4. 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>

5. Electronic Device Usage:

During Lectures and Tutorials: Although you are welcome to use a computer during lectures 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. Please be respectful to your fellow students and turn the sound off. If the professor receives complaints from other students regarding noise or other disruptive behavior (e.g. watching videos on YouTube.com, updating your Facebook status, playing Solitaire), your classroom privileges will be revoked. 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.