

George Mason University
College of Education and Human Development
PhD in Education – Exercise, Fitness, and Health Promotion Specialization
EFHP 810.001- Neuromuscular Responses to Exercise
3 Credits, Spring 2021
Friday/1:30-2:45pm Online

Faculty

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Prerequisites/Corequisites

Graduate Standing or Permission of Instructor

University Catalog Course Description

Provides an in-depth study of the muscular systems of the human body and how these systems are altered in response to acute and chronic physical activity.

Course Overview

Not Applicable

Course Delivery Method

This course will be delivered online (76% or more) using a synchronous format via Blackboard Learning Management system (LMS) housed in the MyMason portal. You will log in to the Blackboard (Bb) course site using your Mason email name (everything before @masonlive.gmu.edu) and email password. The course site will be available on Sunday, January 24th.

Under no circumstances, may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.

Technical Requirements

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with standard up-to-date browsers. To get a list of Blackboard's supported browsers see:
https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#supported-browsers

To get a list of supported operation systems on different devices see:

https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support#tested-devices-and-operating-systems

- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.

- Students will need a headset microphone for use with the Blackboard Collaborate web conferencing tool.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download:
 - Adobe Acrobat Reader: <https://get.adobe.com/reader/>
 - Windows Media Player: <https://support.microsoft.com/en-us/help/14209/get-windows-media-player>
 - Apple Quick Time Player: www.apple.com/quicktime/download/

Expectations

- Course Week:
Our course week will begin on the day that our synchronous meetings take place as indicated on the Schedule of Classes.
- Log-in Frequency:
Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 3 times per week. In addition, students must log-in for all scheduled online synchronous meetings.
- Participation:
Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- Technical Competence:
Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.
- Technical Issues:
Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- Workload:
Please be aware that this course is **not** self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the **Class Schedule** section of this syllabus. It is the student's responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.
- Instructor Support:
Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.
- Netiquette:
The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words.* Remember that you are not

competing with classmates, but sharing information and learning from others. All faculty are similarly expected to be respectful in all communications.

- **Accommodations:**

Online learners who require effective accommodations to insure accessibility must be registered with George Mason University Disability Services.

Learner Outcomes or Objectives

This course is designed to enable students to do the following:

- Discuss the pathways and variables associated with energy transfer within muscle cells.
- Elaborate upon the principles of blood delivery and substance exchange within muscular tissue.
- Explain the processes of muscle contraction and the factors affecting force development.
- Assess the relationships among hormone production, secretion, and uptake on muscular tissue.
- Critically interpret current research findings in exercise physiology.

Required Texts

Zoladz JA. *Muscle and Exercise Physiology*. San Diego, CA: Elsevier; 2018

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

- **Assignments and Examinations**

<u>Description</u>	<u>Points</u>
Weekly Discussions (11) <i>Students will actively participate in discussions serving as either the facilitator, recorder, or participant. The quality of the contribution for the 11 discussions will be worth 5 points each.</i>	55
Weekly Essays (11) <i>Students will construct 1-page minimum essays focused on the assigned topics. The weekly essays will be worth 5 points each.</i>	55
Reflective Essay (1) <i>This end of the year essay will compel students to reflect on their enhanced understanding of the content and professional growth throughout the semester.</i>	10

- **Grading**

The student's final letter grade will be earned based on the following scale:

Grade	Percentage
A	94 – 100%

A-	90 – 93%
B+	88 – 89%
B	84 – 87%
B-	80 – 83%
C	70 – 79%
F	0 – 69%

Note: Although a B- is a satisfactory grade for a course, students must maintain a 3.00 average in their degree program.

Professional Dispositions

See <https://cehd.gmu.edu/students/polices-procedures/>

Students are expected to exhibit professional behaviors and dispositions at all times.

Class Schedule

Date	Topic	Assignment Due
1/29	Chapter 3- Mechanisms of Muscle Contraction and Relaxation	Excitation-Contraction Coupling Animation
2/5	Chapter 11.4- Carbohydrate and Exercise Performance	Weekly Essay Weekly Discussion
2/12	Chapter 12- Muscle Lipid Metabolism	Weekly Essay Weekly Discussion
2/19	Chapter 16.6.1- Mechanisms of Altered Protein Balance Affecting Muscle Mass Chapter 16.6.2.2- Are Satellite Cells Required for Skeletal Muscle Hypertrophy?	Weekly Essay Weekly Discussion
2/26	Chapter 16.6.4 Mechanisms of Mitochondrial Biosynthesis Regulation Muscle Performance	Weekly Essay Weekly Discussion
3/5	Chapter 16.6.5- Transcriptional Regulation of Contractile Phenotype Switching in Response to Altered Activity and Loading States	Weekly Essay Weekly Discussion
3/12	Chapter 17.3- Local Control of Microvascular Perfusion during Exercise Chapter 17.4- Interaction between Metabolic and Sympathetic Control of Muscle Blood Flow	Weekly Essay Weekly Discussion
3/19	Chapter 17.6- Impact of Exercise Training on Skeletal Muscle Blood Flow Chapter 17.7- Effects of Exercise Training of Skeletal Muscle Arteriolar Density Chapter 17.8- Impact of Exercise Training on Skeletal Muscle Capillarization	Weekly Essay Weekly Discussion
3/26	Chapter 22.2- The Coronary Circulation in Acute Exercise	Weekly Essay Weekly Discussion
4/2	Chapter 22.3- The Coronary Circulation in Exercise Training	Weekly Essay Weekly Discussion
4/9	Chapter 24- Regulation of Heart Rate and Blood	Weekly Essay

	Pressure during Exercise in Humans	Weekly Discussion
4/16	Chapter 15- Exercise, Immunity, and Illness	Weekly Essay Weekly Discussion
4/23	TBA- possible on-campus meeting	
4/30	TBA- possible on-campus meeting	
Finals Meeting	TBA- possible on-campus meeting	Reflective Essay

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

GMU Policies and Resources for Students

Policies

- Students must adhere to the guidelines of the Mason Honor Code (see <https://catalog.gmu.edu/policies/honor-code-system/>).
- Students must follow the university policy for Responsible Use of Computing (see <https://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students **solely** through their Mason email account.
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <https://ds.gmu.edu/>).
- Students must silence all sound emitting devices during class unless otherwise authorized by the instructor.

Campus Resources

- Support for submission of assignments to Tk20 should be directed to tk20help@gmu.edu or <https://cehd.gmu.edu/aero/tk20>. Questions or concerns regarding use of Blackboard should be directed to <https://its.gmu.edu/knowledge-base/blackboard-instructional-technology-support-for-students/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking:

As a faculty member, I am designated as a “Responsible Employee,” and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance from Mason’s Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

For additional information on the College of Education and Human Development, please visit our website <https://cehd.gmu.edu/students/> .