

## NEUROMUSCULAR ASPECTS OF EXERCISE

APK 4115 ~ 3 CREDITS ~ FALL 2020

**INSTRUCTOR:** Professor Evangelos A. Christou

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**Preferred Method of Contact:** [uf email](#)

**OFFICE HOURS:** By appointment

**MEETING TIME/LOCATION:** period 1 (7:25 am – 8:15 am)

**IN CLASS – ROOM 220; ONLINE- ZOOM; USE ZOOM LINK FOR PRESENTATIONS**

**ZOOM LINK:** <https://ufl.zoom.us/j/96947214384>

**COURSE DESCRIPTION:** Designed to provide an in-depth analysis of muscle structure and function; how muscles produce movement; adaptation of muscle to resistance training, endurance training and various manipulations used in rehabilitation; adaptation of muscle to disuse; and muscle responses to injury.

**PREREQUISITE KNOWLEDGE AND SKILLS:** APK 3110C with grade of C.

**REQUIRED AND RECOMMENDED MATERIALS:**

RM Enoka. Neuromechanics of Human Movement. 5th edition. Human Kinetics. ISBN 978-1-4504-5880-1 (optional – not required). Handouts and review papers will be provided for specific topics (see schedule).

**COURSE FORMAT:** The typical structure of the class is the following: Monday - lecture on the topic of the week; Wednesday – relevant presentation; Friday – Take home quiz. I take absences only during the presentation days.

**COURSE LEARNING OBJECTIVES:** Upon completion of this course, the student will be able to:

1. Knowledge: Discuss, explain, and defend subject matter relevant to neuromuscular physiology
2. Skills: Discuss, explain, and compare specific skills related to neuromuscular physiology
3. Professionalism: Present and explain vital, relevant concepts in neuromuscular physiology in a professional manner

## COURSE AND UNIVERSITY POLICIES:

**ATTENDANCE POLICY:** Make every effort to attend all lectures. Although attendance will not affect your grades directly, it could influence them indirectly. Numerous concepts that will be discussed only during class (and are not in the book) will be part of your weekly quizzes.

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **PERSONAL CONDUCT POLICY:**

**Technology:** The use of cell phones\* (and the like) is strictly prohibited during lectures and exams. Any cell phone or other electronic device used during an exam will be considered a violation of the student honor code (i.e., cheating) and will result in stiff penalties. Laptop computers are welcome in class as long as you are using it for class-related work. Surfing the web, checking your email, making Facebook posts, or anything of that nature is strictly prohibited. Violation of this policy will result in point deductions at the discretion of the instructor.

**Communication:** You are responsible for checking announcements and course postings on E LEARNING. This is how your course instructor will communicate with you. All course grades will be posted on E LEARNING. Any discrepancies should be pointed out to the instructor on or before the last day of finals week.

**Academic Honesty:** On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Any student found violating this honor code will receive a zero for that exam or assignment and may be assigned other educational sanctions at the instructor's discretion.

<https://sccr.dso.ufl.edu/process/student-conduct-code/>

**EXAM MAKE-UP POLICY:** Unexcused absences on quiz/exam days will result in a zero on the quiz/exam. If you are ill or have an emergency that prevents you from taking the quiz at the scheduled time, it is your responsibility to contact the instructor as soon as possible. Documentation of the illness or emergency will be required. It is in the discretion of the instructor to provide a make-up quiz/exam or count the next one twice.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

**COVID-RELATED:** We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions:

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms](#).
- Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. [Find more information in the university attendance policies](#).

**PRIVACY:** Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who unmute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

## **HONORLOCK:**

**Honorlock System Requirements (exam proctoring):** Exams will be proctored using HonorLock. You will not need to sign-up or schedule a testing time, nor will you need to create an account. To ensure your device is compliant with HonorLock, a series of pre-assessment checks must be performed before gaining access to the exam. Please do so in advance of the exam; we are unable to further accommodate for individual technological issues that may detract from your exam time. Specifications necessary for HonorLock to work are listed below:

### **System compatibility and setup:**

- o HonorLock is only supported through Google Chrome web browser on Mac, PC (no other mobile devices or tables are supported)
- o Students must install the HonorLock Extension within Chrome
- o HonorLock will not support Windows 8, Windows 8.1, Mac OSX 10.11 and Mac OSX 10.12. You can find the updated Minimum System Requirements and a system compatibility test at [www.honorlock.com/support](http://www.honorlock.com/support).
- Additional considerations using HonorLock for exams:
  - o You will need to take the exam on a desktop computer or laptop with a webcam and microphone set up on your chosen device. This will not work on mobile devices or tablets, including iPads and smart phones.
  - o You need to make sure that the camera is facing YOU at all times – if the camera does not stay facing you or if you are out of frame, the exam will pause, preventing you from continuing even midway through. This will detract from your exam time.
  - o You need to open Canvas on the Google Chrome internet browser and to download the HonorLock Chrome Extension. Other internet browsers will not be compatible with HonorLock.
  - o Make sure you have a stable Internet connection wherever you are taking the exam (i.e. good Wi-Fi).
  - o A 360-degree scan of your testing room/environment will be required. If you are using a laptop, you will need to pick up your laptop and rotate it for the room scan, including your examination surface (i.e. desk, table), floor space, your lap, etc. The testing environment should be cleared of any clutter, no notes, or textbooks laying out. These could constitute a violation of the Honor Code (i.e. academic dishonesty).
  - o Make sure the room you are taking the exam in is well-lit and that you are by yourself. Rooms that are not bright enough may get flagged as “blurry” or “unclear”. Avoid posters or photographs on the wall behind you; try to minimize noise (i.e. talking aloud). These will also flag your exam, which will be reviewed by a member of the instructor team for the course to confirm or refute any academic dishonesty.
  - o You must have a valid and clear photo identification (ID) card (Gator ID, driver’s license, passport) to show at the start of the exam. Make sure the image is clear.
  - o Only one screen (i.e. cannot have multiple monitors) and one tab (i.e. the tab that is being used for the exam) in Chrome is allowed. HonorLock has an integrity algorithm that can detect search-engine use, so do not attempt to search for answers, even if it is on a secondary device.

- o An HonorLock Practice Quiz will be set up under Quizzes in Canvas. Please go through this practice test well in-advance of taking the exam. This practice quiz allows you to go through all of the pre-assessment checks so you will know what to expect when taking the exam itself. Take the practice quiz on the device you intend to take the exam on, in the same environment (building, room, etc).
- o Failure to meet the items above may result in a 0 grade. If you encounter any issues with the testing platform or the exam, you should immediately contact HonorLock for assistance. If this fails, you need to email your course instructor right away with specific details (i.e. screenshots of your chat conversation with HonorLock with time stamps) of what occurred so that they can assist you as quickly as possible.

**ACCOMMODATING STUDENTS WITH DISABILITIES:** Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**COURSE EVALUATIONS:** Students in this class are participating in GatorEvals. This evaluation system is designed to be more informative to instructors so that teaching effectiveness is enhanced and to be more seamlessly linked to UF's CANVAS learning management system. Students can complete their evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Thank you for serving as a partner in this important effort.

## GETTING HELP:

### Health and Wellness

- U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575
- Counseling and Wellness Center: <https://counseling.ufl.edu/>, 352-392-1575
- Sexual Assault Recovery Services (SARS) - Student Health Care Center, 392-1161
- University Police Department, 392-1111 (or 9-1-1 for emergencies)  
<http://www.police.ufl.edu/>

### Academic Resources

- E-learning technical support, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu). <https://lss.at.ufl.edu/help.shtml>
- Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling. <https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>
- Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/> On-Line Students Complaints: <http://distance.ufl.edu/student-complaint-process/>

## GRADING:

### Course Examinations and Grading

<b>Activity/Assignment</b>	<b>Points</b>
1. Quizzes x 12	24
2. Group Presentation	26
3. Exam 1	20
4. Exam 2	30
<b>TOTAL POINTS</b>	<b>100</b>

#### **Quizzes (24%)**

There will be a total of 12 quizzes and you will not be allowed to drop ANY.

All quizzes will be TAKE HOME. You will receive them the day of the quiz (usually Friday) and they will be due the following class day (typically Monday).

You will need to submit them electronically in Canvas under assignments. Questions will come from material (lectures and presentations) presented to you since the previous quiz and watching relevant TED talks.

#### **Group Presentation (26%)**

This presentation will be based on a research article that I will provide for you. At the first class you will sign-up to a presentation slot. There will be 2-3 people per presentation.

The length of the presentation should be 15 minutes and should be in the format of a powerpoint presentation. The 15 minute limit is strict and you will be cut short if you go over your time. My suggestion, therefore, is to practice the presentation ahead of time. Conciseness, clarity, and information delivery will be part of your grade. There will be a 2 minutes question-answer session after each presentation. This presentation will worth 26% of your course grade.

Each member will grade the other group members for participation in the presentation. The average score from your group mates will be multiplied with my grade. For example, if I gave you 26% for your presentation and your group mates scored your participation to the presentation at 50%, your individual score will be 13%.

#### **Exams**

There will be no final exam for this course. Both exams will be on canvas and will be honorlocked. Typically I ask 20-30 questions for the whole 50 min period.

**Exam 1 (20%):** This exam will cover the lectures and presentations from Jan 11<sup>th</sup> to Feb 17<sup>th</sup>. It will comprise of multiple choice and fill in the blanks questions. This exam will count for 20% of your grade.

**Exam 2 (30%):** This exam will cover the lectures and presentations from Feb 22<sup>nd</sup> to Apr 11<sup>th</sup>. It will comprise of multiple choice and fill in the blanks questions. This exam will count for 30% of your grade.

**GRADING SCALE:** The total points earned from exams, quizzes, writing assignment, attendance, and presentation will be summed. There is no curve for this course. I reserve the right to round up grades for students who show exceptional participation in class. However, under most circumstances GRADES WILL NOT BE ROUNDED UP!!! If you earn a 79.94%, you will receive a C+, not a B. The following grading scale will be used to assess students in this course. For more detailed information on current UF grading policies, please see the undergraduate catalog web page:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies>

*Any requests for additional extra credit or special exceptions to these grading policies will be interpreted as an honor code violation (i.e., asking for preferential treatment) and will be handled accordingly.*

Letter Grade	Points Needed to Earn Each Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	≥ 93	93.00-100.0%	4.0
A-	90-93	90.00-92.99%	3.67
B+	87.00-89.99	87.00-89.99%	3.33
B	80.00-86.99	80.00-86.99%	3.0
C+	77.00-79.99	77.00-79.99%	2.33
C	70.00-76.99	70.00-76.99%	2.0
D+	67.00-69.99	67.00-69.99%	1.33
D	60.00-66.99	60.00-66.99%	1.0
E	0-59.99	0-59.99%	0



## WEEKLY COURSE SCHEDULE:

This approximates what the semester will consist of. This outline is subject to change at any point during the semester.

### First half

Week	Date	Lecture Topic	Assign.
1	M – Jan 11	Syllabus explanation / Organization How to present scientific data in 15 minutes *see pre-recorder lecture on how to present scientific data	
	W – Jan 13	Synaptic transmission/ Muscle Structure	
	F – Jan 15	<i>Take Home Quiz 1</i>	<b>QUIZ 1</b>
2	M – Jan 18	<b>MARTIN LUTHER KING – no class</b>	
	W – Jan 20	Muscle mechanics	
	F – Jan 22	<i>Take Home Quiz 2</i>	<b>QUIZ 2</b>
3	M – Jan 25	Motor units I - Structure	
	W – Jan 27	<i>Presentation – Groups 1, 2</i>	ONLINE
	F – Jan 29	<i>Take Home Quiz 3</i>	<b>QUIZ 3</b>
4	M – Feb 1	Motor units II - Activation	
	W – Feb 3	<i>Presentation – Groups 3, 4</i>	ONLINE
	F – Feb 5	<i>Take Home Quiz 4</i>	<b>QUIZ 4</b>
5	M – Feb 8	Electromyography	
	W – Feb 10	<i>Presentation – Groups 5, 6</i>	ONLINE
	F – Feb 12	<i>Take Home Quiz 5</i>	<b>QUIZ 5</b>
6	M – Feb 15	Neural control of force	
	W – Feb 17	<i>REVIEW SESSION for EXAM 1</i>	ONLINE
	F – Feb 19	<b>EXAM 1</b>	<b>EXAM 1</b>

## Second half

Week	Date	Lecture Topic	Assign.
7	M – Feb 22	Motor Output Variability	
	W – Feb 24	<i>Presentation – Groups 7, 8</i>	ONLINE
	F – Feb 26	<i>Take Home Quiz 6</i>	QUIZ 6
8	M – Mar 1	Voluntary actions	
	W – Mar 3	<i>Presentation – Groups 9, 10</i>	ONLINE
	F – Mar 5	<i>Take Home Quiz 7</i>	QUIZ 7
9	M – Mar 8	Spinal reflexes and Automatic responses	
	W – Mar 10	<i>Presentation – Groups 11, 12</i>	ONLINE
	F – Mar 12	<i>Take Home Quiz 8</i>	QUIZ 8
10	M – Mar 15	Acute Adjustments – <i>Fatigue</i>	
	W – Mar 17	<i>Presentation – Groups 13, 14</i>	ONLINE
	F – Mar 19	<i>Take Home Quiz 9</i>	QUIZ 9
11	M – Mar 22	Acute Adjustments – <i>Stress</i>	
	W – Mar 24	<b>RECHARGE DAY – no class</b>	
	F – Mar 26	<i>Take Home Quiz 10</i>	QUIZ 10
12	M – Mar 29	Chronic Adaptations – <i>Aging</i>	
	W – Mar 31	<i>Presentation – Groups 15, 16</i>	ONLINE
	F – Apr 2	<i>Take Home Quiz 11</i>	QUIZ 11
13	M – Apr 5	Chronic Adaptations – <i>Motor Learning</i>	
	W – Apr 7	<i>Presentation – Groups 17,28</i>	ONLINE
	F – Apr 9	<i>Take Home Quiz 12</i>	QUIZ 12
14	M – Apr 11	<i>REVIEW SESSION for EXAM 2</i>	ONLINE
	W – Apr 13	<b>EXAM 2</b>	EXAM 2
	F – Apr 15	<i>Presentation – Groups 19,20</i>	ONLINE
15	M – Apr 18	<i>Presentation – Groups 21,22</i>	ONLINE
	W – Apr 20	<b>Makeup presentations</b>	
	Fri Apr 26	<b>Final Exam (8:00-10:00pm) used as makeup time</b>	

### SUCCESS AND STUDY TIPS:

Successful students in my class typically do the following:

1. Do not miss classes throughout the semester. A lot of the quiz and test material are given in class. A significant amount of information is not on the slides or in the book.
2. Take the presentation very seriously and start preparing ahead of time. The group presentation requires anywhere from 10-15 hours of outside class work.
3. Come prepared to the review sessions before the exam. Many concepts are clarified in those sessions.