

NATURE & BASES OF MOTOR PERFORMANCE

APK 6205C ~ 3 CREDITS ~ FALL 2024

INSTRUCTOR: **Professor Evangelos A. Christou**
Office: FLG 1G
Office Phone: 352-294-1751
Email: eachristou@ufl.edu
Preferred Method of Contact: UF email

OFFICE HOURS: M 9:30-11:30am

MEETING TIME/LOCATION: FLG 225, M period 10-E1 (5:10 pm – 8:10 pm)

COURSE DESCRIPTION: University of Florida Course Description: Principles relating to development of motor skill, with emphasis on conditions affecting its development and retention in activities. This class will address the physiological principles that underlie current concepts in motor control and learning.

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 this 3-period class that occurs every Monday is the following: Lecture on the topic of the week followed by a relevant presentation from a student. After that there will be Discussion on each topic.

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

1. Knowledge: Discuss, explain, and defend subject matter relevant to physiological principles that underlie motor performance.
2. Skills: Discuss, explain, and compare specific skills related to physiological principles that underlie motor performance.
3. Professionalism: Present and explain vital, relevant concepts in motor performance 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 exam. If you are ill or have an emergency that prevents you from taking the exam 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>.

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.

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 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. <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

| Activity/Assignment | Points |
|-----------------------------|------------|
| 1. Paper Presentation | 15 |
| 2. Writing Assignment | 15 |
| 3. Take Home Exam 1 | 10 |
| 4. Take Home Exam 2 | 10 |
| 5. Take Home Exam 3 | 15 |
| 6. Final Comprehensive Exam | 35 |
| TOTAL POINTS | 100 |

Paper Presentation (15%)

This presentation will be based on a research article that I will provide for you. I will randomly assign you into a presentation group and I will post the list on CANVAS.

The length of the presentation should be 20 minutes and should be in the format of a powerpoint presentation. The 20 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 10 minutes question-answer session after each presentation. This presentation will worth 15% of your course grade.

If more than one person is presenting, then 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 your group 15% for your presentation and your group mates scored your participation to the presentation at 50%, your individual score will be 7.5%.

Writing Assignment (15%)

You will select to write a short literature review on one of the following topics:

1. Changes in motor unit activity in individuals suffering from tremorgenic disorders (e.g. Essential Tremor or Parkinson's Disease).
2. Fatigability in individuals with Essential Tremor and Parkinson's Disease.
3. Motor learning in individuals with Essential Tremor and Parkinson's Disease.

The length will be 3 pages, single spaced, and 12 font size Arial. You should use <10 scientific papers.

The paper is due on **Monday November 20th**. **Late papers will NOT be accepted.**

This writing assignment will worth 15% of your course grade. We will go through many review papers this semester and you should use them as templates.

Take Home Exams (35% for all three)

There will be three take-home exams for this course. I will ask 2-3 essay questions.

Exam 1 (10%): This exam will cover the lectures and presentations from August 26th to September 9th. It will comprise of 2-3 essay questions, and you will have 3 hours during class time to answer it. It will be an open book. This exam will count for 10% of your grade.

Exam 2 (10%): This exam will cover the lectures and presentations from September 23rd to September 30th. It will comprise of 2-3 essay questions, and you will have 3 hours during class time to answer it. It will be an open book. This exam will count for 10% of your grade.

Exam 3 (15%): This exam will cover the lectures and presentations from October 14th to November 4th. It will comprise of 2-3 essay questions, and you will have 3 hours during class time to answer it. It will be an open book. This exam will count for 15% of your grade.

Final Comprehensive Exam (35%)

This exam will cover the main concepts from all the lectures. It will comprise of short answers and maybe multiple choice and fill in the blank questions. This exam will count for 35% 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 – Aug 26 | Syllabus explanation / Organization | |
| | | How to present scientific data | |
| | | Synaptic transmission/ Muscle Structure Movement mechanics and types of muscle contraction | Lecture 1 |
| 2 | M – Sep 2 | LABOR DAY – NO CLASS | |
| | | | |
| | | | |
| 3 | M – Sep 9 | Organization and activation of motor units | Lecture 2 |
| | | Modulation of multiple motor units | |
| | | Electromyography | |
| 4 | M – Sep 16 | TAKE HOME EXAM 1 | |
| | | | |
| | | | |
| 5 | M – Sep 23 | Neural control of force | Lecture 3 |
| | | Paper Presentation 1,2 | |
| | | | |
| 6 | M – Sept 30 | Motor Output Variability | Lecture 4 |
| | | Voluntary control of movement | |
| | | Paper Presentation 3,4 | |

Second half

| Week | Date | Lecture Topic | Assign. |
|------|------------|--|------------|
| 7 | M – Oct 7 | TAKE HOME EXAM 2 | |
| | | | |
| 8 | M – Oct 14 | Spinal reflexes and Automatic responses | Lecture 5 |
| | | Paper Presentation 5 | |
| 9 | M – Oct 21 | Fatigue and motor performance | Lecture 6 |
| | | Paper Presentation 6 | |
| 10 | M – Oct 28 | Stress and motor performance | Lecture 7 |
| | | Paper Presentation 7 | |
| 11 | M – Nov 4 | Visual feedback and motor performance | Lecture 8 |
| | | Paper Presentation 8 | |
| 12 | M – Nov 11 | TAKE HOME EXAM 3 | |
| | | | |
| 13 | M – Nov 18 | Aging and motor performance | Lecture 9 |
| | | Paper Presentation 9 | |
| | | PAPER DUE | |
| 14 | M – Nov 25 | Motor learning and performance | Lecture 10 |
| | | Paper Presentation 10 | |
| 15 | M – Dec 2 | REVIEW FINAL EXAM | |
| | Th Dec 9 | COMPREHENSIVE FINAL EXAM Final Exam Time: 10:00 AM – 12:00 PM | |

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.