

KINE 5328 Neuromuscular Physiology of Exercise Spring 2009

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Office Hours: By Appointment

Location & Time: MAC 213, Thursday, 5:00 PM – 9:50 PM,

Course Objectives:

Upon successful course completion, students will demonstrate:

1. EMG methodology
2. EMG Force / Fatigue relationships
3. Neural Factors
4. Reflex & Preactivation components of EMG
5. Mechanomyography
6. EMG Onset and Duration Analysis
7. EMG Signal Processing and Analysis

Course Description:

KINE 5328 Neuromuscular Physiology of Exercise (3-0) The structure and function of muscle, including the motor unit, control and integration, central and peripheral modifiers of neuromuscular control and biochemical characteristics of fibers will be studied. These concepts will also be applied to concepts in strength and power development.

Required Textbook: Enoka RM, [. Neuromechanics of Human Movement](#), 4th ed. Human Kinetics, 2008 (ISBN 9780736066792).

Grading:

As a policy of the University of Texas at Arlington (UTA) outlined in the official Graduate Catalog, graduate credit will be given for grades of A, B, or C (as well as P) for work done at UTA, subject to the following conditions:

1. The student must maintain a B average in all work done in the major.
2. The student must maintain a B average in all work done in the minor.
3. The student must maintain a B average in all advanced work.

Grades in this course will be based on the following percentages:

Exams (2):	80%
Research Presentation:	10%
EMG Skill Test	10%

----- Tentative Course Schedule -----		
Week 1	1-22	EMG Review; EMG Methodology Lab 1: Manual Muscle Testing
Week 2	1-29	De Luca: Surface EMG; Noraxon ABC's of EMG Lab 2:
Week 3	2-5	Merletti: Surface EMG for Characterization of Muscle De Luca: Practicum on Surface EMG Larsson: Reproducibility of EMG
Week 4	2-12	Moritani: Myoelectric Manifestations of Muscular Fatigue Lab: EMG - Fatigue
Week 5	2-19	Orizio: Historical Basis of MMG Lab: MMG
Week 6	2-26	Ricard: Effects of RFD on EMG Amplitude and Frequency Lab: Rate of Force Development
Week 7	3-5	Moritani: EMG Neural Factors Aagaard: Increased Neural Drive Following Resistance Training Lab:
Week 8	3-12	Mid Term Exam
	3-19	Spring Break
Week 9	3-26	Aagaard: Training Induced Changes in Neural Function Van Cutsem: Ballistic Training
Week 10	4-2	Lay: Effects of Sloped Surfaces on Locomotion Lab: EMG Onset and Duration Analysis
Week 11	4-9	Data Collection for Research Projects
Week 12	4-16	Data Collection for Research Projects
Week 13	4-23	Research Presentations
Week 14	4-30	Research Presentations
Week 15	5-8	Review for Final
Week 16	5-14	Final Exam

Drop Policy:

The Department of Kinesiology will not warn students nor drop students for excessive absences. It is the responsibility of the student to complete ADDING, DROPPING or withdrawing from school within the appropriate time frame established by the University Registrar (deadlines to be found in the Schedule of Classes). Any student that does not officially drop the class by the appropriate drop dates will be given an "F" for the course.

Americans With Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112 – The Rehabilitation Act of 1973 as amended. With passage of new federal legislation entitled Americans With Disabilities Act – (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “**reasonable accommodation**” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with **informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.**

Student Support Services:

The University supports a variety of student success programs to help you connect with the University and achieve academic success. They include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Academic Dishonesty:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. “Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22)

Bomb Threats:

If anyone is tempted to call in a bomb threat, be aware that UTA will attempt to trace the phone call and prosecute all responsible parties. Every effort will be made to avoid cancellation of presentations/tests caused by bomb threats. Unannounced alternate sites will be available for these classes. Your instructor will make you aware of alternate class sites in the event that your classroom is not available.

Final Review Week:

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

Library Policy:

For assistance with your library needs in this course, please consult Eric Frierson, Education Librarian, Room 313 UTA Central Library | 817 272 7517 (w) | frierson@uta.edu
<http://www.uta.edu/faculty/frierson/>

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The University of Texas at Arlington College of Education Mission, Core Values and Professional Dispositions

MISSION: To develop and deliver an educational program that ensures the highest teacher, administrator and allied health science preparation and performance and To be a recognized contributor in the field of educational and allied health science research and practice through effective teaching, quality research and meaningful service. The Educator and Administrator Preparation units' collaboratively developed shared vision is based on these CORE VALUES, dispositions and commitments to:

- Excellence • Diversity
- Learner-centered environment • Technology
- Research-based • Field Experiences
- Collaboration • Life-long Learning

Each candidate in the Educator and Administrator Unit of the College of Education of UT-Arlington will be evaluated on PROFESSIONAL DISPOSITIONS by faculty and staff. These dispositions have been identified as essential for a highly-qualified educator. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any deficiencies.

Demonstrates excellence

- Meets stated expectations of student performance.
- Keeps timelines. Arrives on time for class and other activities.
- Produces significant artifacts of practitioner evidence.
- Possesses a willingness to set goals.
- Attends all classes/trainings and practicum experiences.
- Completes activities as assigned.
- Has appropriate personal appearance and/or hygiene for professional setting.

Participates in a learner centered environment and shows respect for self and others

- Uses appropriate and professional language and conduct.
- Supports a "high quality" learning environment.
- Shows respect and consideration for the thoughts and feelings of others.

Research-based pedagogy

- Has an awareness of and willingness to accept research-based concepts.
- Identifies important trends in education.
- Demonstrates interests in learning new ideas and strategies.
- Relates class discussions and issues to current events in education.

Participates in on-going collaboration with peers and professionals

- Demonstrates kindness, fairness, patience, dignity and respect in working with peers, staff and instructors.

- Works effectively with others.
- Assists others in the university classroom or practicum setting.
- Demonstrates openness to assistance from others.
- Receives feedback in a positive manner and makes necessary adjustment.

Exhibits stewardship of diversity

- Shows appropriate stewardship and tolerance to diverse people, environments, and situations.

Advocates use of technology

- Uses and applies existing technologies sufficiently in work.
- Shows a willingness to use and apply emerging technologies in work.

Shows interest in the learner and the learning-process

- Demonstrates significant learning improvement over time.
- Shows interest in the learning process and demonstrates the necessary amount of time, energy, and enthusiasm for becoming better learners, teachers, and practitioners.