

# COLLEGE OF EDUCATION

## CONCEPTUAL FRAMEWORK

### MISSION

The mission of the Auburn University College of Education is to build a better future for individuals, our state, our nation and our world. We fulfill our mission by preparing competent, committed and reflective professionals as we engage in outstanding teaching, cutting-edge research and meaningful outreach.

### VISION

Our vision is one of transformation. We strive to be and prepare agents of change. We seek to establish and work collaboratively within socially responsive learning communities that value the mosaic of a diverse society. Our vision includes engaging in the continuous learning necessitated by a rapidly advancing world; identifying and addressing critical issues related to the education of all people; and using technology to broaden and support learning opportunities. Ours is a vision of change embracing the inclusive, collaborative and technological aspects of our mission, thereby establishing us as a college representing educational advocacy and innovation in the 21st century.

### PHILOSOPHY, PURPOSE AND GOALS

Our philosophy of learning and teaching emphasizes that building a better future for all means creating learning environments for diverse learners that acknowledge the active, collaborative and ever-evolving nature of learning. This philosophy also values teaching that promotes the development of safe, stimulating learning communities enriched with diverse perspectives; is grounded in reasoned and purposeful decision making; and is enacted in proactive, flexible and self-regulating ways.

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*A Keystone to Building a Better Future for All*



The keystone, the topmost stone of an arch, serves as a visual reminder of our mission and our goals. Just as the keystone supports and holds an arch together, education holds intact the promise of a better future for all. We believe that education is the keystone of opportunity and equity in a richly diverse, increasingly technological, and ever-changing world. It is the critical building block that enables individuals and societies to flourish in a global community.

## **Health and Human Performance Course Syllabus**

- 1. Course Number:** KINE 8770  
**Course Title:** Neuromuscular Aspects of Exercise and Training  
**Credit Hours:** 3 credit hours (Lecture 3)  
**Prerequisite:** KINE 7680, KINE 7700, or equivalent  
**Corequisite:** None

**2. Date Syllabus Prepared-** January 6, 2010

**3. Text:** MacIntosh B.R., Gardiner P.F., MCComas AJ. (2006) Skeletal Muscle: Form and Function. Human Kinetics; Champaign, IL

Course Notes, Readings

### **4. Course Description**

This course will investigate the neuromuscular mechanisms that allow humans to perform work. More specifically mechanisms of energy output, neural control, neural integration, energy metabolism, fatigue, neuromuscular adaptations, training, and detraining.

### **5. Course Objectives:** The student will:

1. Demonstrate an understanding of the basic metabolic, neurological, circulatory, respiratory, and environmental responses to acute and chronic muscular exercise.
2. Demonstrate an understanding of the integration of the neurological stimulus, activation of contractile apparatus, and excitation-relaxation sequence of muscular contraction.
3. Demonstrate an understanding of physiological adaptations that are associated with human physical activity and their influence upon performance.
4. Demonstrate an understanding of research techniques which have been utilized as a tool to gain knowledge of neuromuscular structure and function.

### **6. Course Content:**

<b>Weeks 1</b>	Cell, membrane structures, ion distribution
<b>Week 2, 3</b>	Ion Transport mechanisms, membrane permeability, membrane potentials.
<b>Week 4</b>	Membrane receptors, trans-membrane communication
<b>Weeks 5</b>	Action potential, neural transmission, neural conduction
<b>Weeks 6</b>	Synaptic gap, neurotransmitters
<b>Weeks 7</b>	Muscle structure, development, muscle tissue organization
<b>Week 8</b>	Ultra structure, activation of contractile sequence
<b>Week 9, 10</b>	Contractile theories
<b>Week 11</b>	Fiber types, force production
<b>Week 12</b>	Muscle fiber recruitment
<b>Week 13</b>	Training
<b>Week 14</b>	Detraining, muscle atrophy
<b>Week 15</b>	Fatigue

## 7. Course Requirements

Students are required to complete designated readings in the course text and assigned journal articles, be ready to discuss the reading materials in class, complete the three exams (1, 2, and Final), and complete the term paper on a topic of interest to the student and is related to neuromuscular mechanisms, training, or adaptations.

## 8. Grading and Evaluation Procedures

Exam 1 .....	100 points
Exam 2 .....	100 points
Final Exam .....	100 points
Term Paper .....	<u>100</u> points
Total	400 points

A	>90%
B	< 90% to 80%
C	< 80% to 70%
D	< 70% to 60%
F	< 60%

## 9. Class Policy Statement:

The tests will cover material that is presented in the course text, lecture, class discussions, laboratory experiences, and laboratory assignments. Tests, laboratory reports, and protocol project are due on the day assigned and students will not receive the allotted points without a documented excuse or prior teacher permission. The student is required to attend all laboratory sessions. Students without a documented excused absence will not receive any points on the laboratory assignment. Students with physical and educational handicaps will be able to participate in this curriculum through a program designed to accommodate their special needs.

Participation: Students are expected to participate in all class discussions and participate in all exercises. It is the student's responsibility to contact the instructor if assignment deadlines are not met. Students are responsible for initiating arrangements for missed work.

Attendance/Absences: If an exam is missed, a make-up exam will be given only for University-approved excuses as outlined in the Tiger Cub. Arrangement to take the make-up exam must be made in advance. Students who miss an exam because of illness need a doctor's statement for verification of sickness and should clear the absence with the instructor the day they return to class. Other unavoidable absences from campus must be documented and cleared with the instructor **in advance**.

Unannounced quizzes: There will be no unannounced quizzes.

Distance Learning Students: Unless specific instructions have been given for a designated course, students in distance education courses shall take all closed resource examinations under the supervision of an approved proctor. Examples of approved proctors include a school superintendent, a principal of a high school, or a dean or department head of a college. Proctors shall be verified and exams shall be sent directly to the proctor who will manage the examination in a secure manner, requiring students to present a picture ID.

Accommodations:

Students who need special accommodations in class, as provided for by the American Disabilities Act, should arrange a confidential meeting with the instructor during office hours the first week of classes - or as soon as possible if accommodations are needed immediately. You must bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have these forms but need accommodations, make an appointment with the Program for Students with Disabilities, 1244 Haley Center, 844-2096

Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

Professionalism: As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College's conceptual framework. These professional commitments or dispositions are listed below:

- Engage in responsible and ethical professional practices
- Contribute to collaborative learning communities
- Demonstrate a commitment to diversity
- Model and nurture intellectual vitality

## **10. Justification of Graduate Credit**

The content of this course is of sufficient depth and complexity to justify graduate credit; the material goes well beyond the introductory level and requires students to consider neuromuscular functions, theories related to muscular contraction, neural recruitment, fatigue, and disease pathology as it relates to neuromuscular function. The prerequisite for this course is the Auburn University graduate course HLHP 7680 or HLHP 7700, or equivalent. Students are required to analyze, explore, question, reconsider, and synthesize old and new knowledge and skills. Rigorous standards are applied to the evaluation of exams and class performance.