Summer 2010 M. A. Urbin

**KINE 3650** - **MOTOR LEARNING & PERFORMANCE (4 cr.)**

Lecture: Monday, Wednesday, Friday 1:00 - 2:15 PM (HC 1435)

Lab: Tuesday, Thursday 1:00 – 2:15 (HC 1435)

**Instructor**

Mike Urbin, Motor Behavior Center, 1466 Haley, E–mail: mau0003@auburn.edu

Office hours: By appointment

**Prerequisite**

KINE 3020 - Scientific Foundations of Health and Human Performance

**Textbook**

Rose, D.J., & Christina, R.W. (2006). *A multilevel approach to the study of motor control and learning (2nd ed.)*.

**Course Description**

This course covers the study of processes that influence motor skill learning and performance from a behavioral and neurological level of analysis. In doing so, questions of how humans learn and control simple and complex movement skills are addressed. Applications exist for those who plan to work in physical rehabilitation, occupational therapy, sport performance, and industrial settings.

**Course Objectives**

Upon completion of this course, students will understand:

1. The characteristics and measurement of motor skills;

2. Theoretical aspects of how the nervous system controls coordinated movement and learning, and

limitations built into the system;

3. How a variety of instructional and practice conditions influence the acquisition of motor skills;

4. How individual differences among learners influence motor skill acquisition and performance.

**Evaluation Final Letter Grade**

Presentation - 5% 90.0 - 100 = A

Lab - 10% 80.0 - 89.9 = B

Neurophysiology Exam – 30% 70.0 - 79.9 = C

Term Paper – 55% 60.0 - 69.9 = D

< 60.0 = F

**Note:** Additional credit opportunities and/or assessments may occur throughout the course of the semester with or without notice.

The Study of Motor Behavior/Classification of Motor Skills

Neuro-anatomy/Action Potentials

Measurement of Motor Performance

Synaptic Transmission/Neuromuscular Junction

Motor Control Theories

Peripheral Receptors/Reflexes

Spinal Cord

Characteristics of Motor Skill Performance

Cortical Motor System

Action Preparation

Basal Ganglia

Assessing Learning, Progression of Learning, Transfer of Learning

Cerebellum

Observational Learning. Verbal Instructions, Feedback

Vestibular System

Practice Structure: Constant/Variable, Massed/Distributed, Whole/Part

Mental Imagery

**Lab**

There will be a total of seven laboratory sessions over the course of the semester. Each lab will be scheduled at least two days before it is to take place. The topic and corresponding text reading for each lab is provided below. Following data collection for each lab session, students will be instructed to construct graphs, respond to questions, and evaluate results.

**Topic Text Reading**

Error Scores 36-41

Reaction Time, Stimulus Modality, & Foreperiod 32-34

Vision & Proprioception in Catching 107-108

Relationship between Speed & Accuracy 159-161

Practical Application Ballistic Skill Paper

Bilateral Transfer 376-379

Augmented Feedback Precision 303-316

**Presentation**

You will present a scholarly research article which relates to Motor Behavior and your career aspirations. Motor Behavior is unique in that research within this field intersects many other disciplines, such as sport/exercise psychology, exercise physiology, biomechanics, epidemiology, pedagogy, etc. Your presentation should clearly and thoroughly address the following components: purpose/rationale/previous research/relevance of research question, participants, method, results/discussion, implications for future research/real-world application.

**Neurophysiology Exam**

There is a great deal of research presented in this course based on the behavioral level of analysis. However, a well-rounded understanding of how human movement is controlled requires knowledge of the underlying neurological mechanisms. Consequently, there will be a significant portion of lectures devoted to neurophysiology. At the end of the semester, there will be a comprehensive exam entirely based on this content.

**Term Paper**

You will submit a comprehensive paper to my mailbox located in Memorial Coliseum by August 2, 2010 at 12:00 p.m. You will be paired with another student in class for this paper. The purpose of this partnership is to ensure you are making correct applications supported by research. Therefore, you will be evaluated on the accuracy of your partner’s applications in his/her paper. Please note: this does not include errors in spelling/grammar/syntax/etc. The requirements for this paper in terms of required content and format will be provided. You are strongly encouraged to meet with me in person for feedback on your paper and contact me through e-mail with any questions throughout the semester.

**E–mail** - The University has requested that all students use their Auburn University e–mail accounts. This is the most efficient way for instructors to communicate with an entire class, and the University will occasionally send global notices that are important for all students. Please check your AU e-mail account regularly.

**Disability Accommodations** - Students who need accommodations are asked to arrange a meeting during the first week of classes, or as soon as possible if accommodations are needed immediately. To set up this meeting, please contact me by e–mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with **The Program for Students with Disabilities**, 1228 Haley Center, 844-2096.

**Attendance** – Students will not be assessed or evaluated on attendance over the course of the semester. Students are strongly encouraged to attend and actively engage in the course. However, attendance is ultimately at the student’s discretion. **Important** - If, at any time during the semester, you have issues or concerns with anything related to this course, you should approach me as soon as absolutely possible.