Fall 2010 M. A. Urbin

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

Lecture: Tuesday, Thursday 9:30-10:45 PM (MC 1081)

Lab: 001) Monday, 10:00 – 11:40 (HC 1435)

002) Wednesday, 10:00 – 11:40 PM (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 control and learning from a behavioral and neurological level of analysis. Questions of how humans learn and control simple and complex movement skills are addressed. Applications exist for those who plan to work in medical, sport performance, and industrial settings.

**Course Objectives**

Upon completion of this course, students will understand:

1. The central and peripheral neurological mechanisms controlling movement;

2. Measurement of learning and control of motor performance;

3. Theoretical accounts of how the nervous system coordinates skilled movement;

4. Influence of individual differences, instructional strategies, and practice conditions on motor skill acquisition.

**Evaluation Final Letter Grade**

90.0 - 100 = A

Lab - 10% 80.0 - 89.9 = B

Neurophysiology Exam –45% 70.0 - 79.9 = C

Term Paper – 45% 60.0 - 69.9 = D

< 60.0 = F

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

**Course Content**

The Study of Motor Control & Learning

Classification of Motor Skills

**Neural Systems Overview**

Measurement of Motor Performance

**Synaptic Transmission**

**Neuromuscular Junction**

Motor Control Theories

**Sensory Receptors (Touch, Proprioception, & Vision)**

**Reflexes**

**Spinal Cord Control**

Characteristics of Human Motor Control

**Cortical Control**

Action Preparation

Assessment, Progression, & Transfer of Motor Skill Learning

**Vestibular System**

**Basal Ganglia & Cerebellum**

Observational Learning. Verbal Instruction, & Feedback

Structure of Practice

Mental Imagery

**Lab**

There will be a total of seven laboratory sessions possible over the course of the semester. All of the remaining lab sessions should be used to work on your term paper – I will be available if you request to meet with me. The topic and corresponding text reading for each lab is provided below. Following data collection for each lab session, you 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 Paper

Bilateral Transfer 376-379

Augmented Feedback Precision 303-316

**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, which is in bold print under the course content listed in this syllabus.

**Term Paper**

Your term paper (hard-copy version) will be submitted the final week of classes, at which time you will meet with me to verbally defend it. 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 empirical evidence. Therefore, you will be evaluated on the accuracy of the applications contained in your partner’s paper. Please note: this does not include errors in spelling/grammar/syntax/etc. The requirements for this paper in terms of content and format will be provided. You are strongly encouraged to meet with me in person for feedback 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 a large number of students. Please check your AU e-mail account regularly.

**Disability Accommodations** - Students who need accommodations are asked to approach me with a copy of your Accommodation Memo and an Instructor Verification Form. 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 any issues or concerns pertaining to this course, you should approach me as soon as absolutely possible.