KINS 4690/6690 Lab Course Syllabus

Class time: Monday 11:15 -1:10 –or– Wednesday 11:15-1:10
Office: Ramsey Center Room 107C
Office Hours: By appointment only
Email: please use eLC New for communication

Course Description: Laboratory experiences in skeletal muscle physiology provide hands-on experience with experimental methods used in the study of skeletal muscle responses and adaptations to exercise

Course Objectives: Practice measuring strength and endurance
Develop proficiency with methodology
Develop data analysis skills
Practice communicating research results and analysis

eLC New: Lab information will be posted on eLearning Commons New

Grading: Grading will be on a 20 point scale, contributing up to 20% of total course grade
Pre-Lab Quizzes: 5 points
Post-Lab Discussions: 15 points
Participation: 2 points

Assignments: Pre-Lab: Reading material will be given to you prior to each lab and you will be quizzed on the reading at the beginning of each class period. Also, a typed summary, question and comment about the reading will be required.
Post-Lab: You will write a discussion no longer than 1 page typed over the actual and expected outcomes of each lab while covering the course objectives listed below submitted via eLC before the start of next lab meeting.
*Shepherd center visit make-up: If you are unable to attend the Shepherd Center visit, the assignment will be a 10 minute presentation on a topic pertaining to the class.

Course Policies

Attendance: Attendance is mandatory. You may attend the other lab section and make up assignments only with a university excused absence and approval from the instructor. All other excuses, you will receive no credit for that week's assignments. If you are more than 5 minutes late, you will not be able to take the pre-lab quiz.

Dress: Athletic clothing and shoes are required for data collection days. Proper clothing includes athletic pants/shorts, T-shirts/sweatshirts, etc – clothing you feel comfortable exercising in. Jeans, dress shoes and pants, dresses, skirts, etc are not permitted. Absolutely no open toe shoes (sandals, flip-flops).

Academic Honesty: University Honor Code and Academic Honesty Policy

All academic work must meet the standards contained in "A Culture of Honesty." Each student is responsible to inform themselves about those standards before performing any academic work.

Copies of the honor code can be obtained from the Office of the Vice President for Instruction or may be viewed at the following web site: http://www.uga.edu/ovpi/

Course Outline: Laboratory topics will be covered as listed below. Lab reports will be turned in the following week.

Week	Topic	Location	Objectives
1/13-16	1-RM	107	How 1-RM is measured Advantages and disadvantages of 1-RM method When and where to use 1-RM method
1/20-23	MLK Jr. Holiday	107	No Lab
1/27-31	Muscle Pinnation Angles		How can ultrasound be used to evaluate muscle contraction
2/3-6	MVC - Biodex	109	How MVC is measured Advantages and disadvantages of MVC method When and where to use MVC method
2/10-13	Force-Velocity Biodex	109	How is muscle speed measured What are the advantages and disadvantages of measuring force at different velocities
2/17-20	Length-Tension Biodex	109	How is the length tension curve measured What does the length tension curve look like *in vivo*
2/24-27	Frequency Force Curves	107	Three reasons for electrical stimulation of muscle How to measure force generation with electrical stimulation How does electrode size influence force development How are current, frequency, force related to pain
3/3-6	Super-Imposed Twitch	107	How is fast and slow twitch determined How is electrical stimulation used to evaluate muscle activation
3/10-13	Spring Break!		No Lab
3/17-20	Low Frequency Fatigue	107	How is low frequency fatigue measured What kind of exercise should cause low frequency fatigue
3/24-27	Muscle Metabolism - NIRS	107	What happens to muscle oxygen levels during exercise and recovery What happens to muscle oxygen levels during ischemia and reperfustion
3/31- 4/3	Blood Flow-Ultrasound		How can ultrasound be used to measure muscle blood flow Advantages and disadvantages of using ultrasound Arterial blood flow during exercise and recovery Arterial blood flow during ischemia and reperfusion
4/7-10	EMG	107D	How can EMG be used to measure muscle activation

4/14-17	Novel Exercise Devices	107D	Systematic evaluation of training devices on the market Be able to identify mechanisms in the muscle that is causing training stimulus
4/21-24	Shepherd Center	107D	An opportunity to visit The Shepherd Center: Spinal Cord Injury, Brain Injury Rehabilitation in Atlanta, GA as a class. * Set date to be determined.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.