

# 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.

#### COLLEGE OF EDUCATION



*A Keystone in 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.

**1. Course Number:** KINE 7710

**Course Title:** Laboratory Techniques in Exercise Physiology

**Credit Hours:** 4 credit hours

**Prerequisite:** HLHP 7680

**Corequisite:** None

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

**3. Text** - Adams, Gene (2002) Exercise Physiology Laboratory Manual, 4th Edition, Wm. C. Brown Publishers

**Resource Texts:**

*ACSM Guidelines for Exercise Testing and Prescription*, 7<sup>th</sup> Edition, Lippincott Williams & Wilkins, 2005.

*ACSM'S Resource Manual for Guidelines for Exercise Testing and Prescription*, 5<sup>th</sup> Edition, Lippincott Williams & Wilkins, 2005.

**4. Course Description**

This course will introduce students to laboratory techniques that provide a measurement and evaluation of an individual's physical performance. Emphasis will be placed on relating these measurements and findings to practical problems related to human physical activity.\*

\* (Physical activity can be related to work-ergonomics, recreation, fitness, and sports as influenced by environmental conditions, nutritional status, level of conditioning, age, gender, strength, psychological motivation, and other positive and negative stressors.)

**5. Course Objectives**

The student will:

1. Demonstrate an understanding of the basic metabolic, circulatory, respiratory, muscular, and environmental responses to acute and chronic exercise.
2. Demonstrate an understanding of physiological adaptations that are associated with human physical activity and their influence upon performance.
3. Demonstrate an understanding of the evaluation of various exercise programs in a variety of population groups in order to improve health and performance.
4. Conduct a variety of laboratory experiments in order to observe the physiological responses and adaptations that occur during physical activity.
5. Demonstrate a working proficiency in laboratory equipment and techniques associated with exercise performance testing.

**6. Course Content**

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|---------------|---|
| <b>Week 1</b> | Scientific work (Scientific Method, literature formats, terminology, Error of Measurement)                          |
| <b>Week 2</b> | Body composition (hydrostatic, skinfolds, circumference, Bioelectrical Impedance Analysis-BIA) and Body Mass Index. |
| <b>Week 3</b> | Ergometry and calibration (Treadmills, cycle ergometers)  |

<b>Weeks 4, 5</b>	Haldane calculations, ACSM calculations, submaximal testing, and estimations of oxygen consumption
<b>Weeks 6-8</b>	Metabolic energy expenditure (gas analysis, exercise testing)
<b>Weeks 9</b>	Work, Power (anaerobic tests)
<b>Week 10</b>	Aerobic Tests (Steps tests, Shuttle Run, Aerobic Run Tests)
<b>Week 11</b>	Lung volumes and function
<b>Week 12</b>	Temperature measurement (terminology, calibrating/use of thermal probes, thermography, WBGT, etc)
<b>Week 13</b>	Blood collection and analysis (Universal precautions, techniques, assays)
<b>Week 14</b>	Diet (diet composition, diet recall programs, and analysis)
<b>Week 15</b>	Review, Lab Final

## 7. Course Requirements

Students are required to complete designated readings in the course text, attend and complete laboratory reports, two written exam, one laboratory exam, and complete the test protocol project.

## 8. Grading and Evaluation Procedures

	Possible Pts.	Total Pts.	
Quizzes (1)	25 points	25	(Haldane)
Write Ups (1)	25 points	25	(Anaerobic, Aerobic)
Test Protocol Project (1)	50 points	30	(Performance testing for sport group)
Data Reports (3)	20 points	60	(Calibration, thermal probes, VO <sub>2</sub> )
Midterm*	80 points	80	
Written Final*	80 points	80	
Practicum Final	200 points	<u>200</u>	
<i>Semester total</i>		500*	

\*Midterm and written final will be scaled to the highest score on the test. This may alter the final class point total. The Practicum Final will not be scaled or adjusted.

## 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.

Cell Phone Use: There will be no cell phone use during the lecture portion of this class; this includes all forms of cell phone communications. Please turn your phone off or on mute during the class lecture period.

**10. Justification of Graduate Credit:**

The content of this course is of sufficient depth and complexity to justify graduate credit; the course requires students to demonstrate an understanding of physiological principles related to the assessment of human performance, testing procedures, demonstrate an understanding of testing equipment/calibrations, be able to interpret results and relate test measures to normative values. The prerequisite for this course is the Auburn University graduate course HLHP 7680 or equivalent. Students are required to analyze data, synthesize old and new knowledge and skills related to the testing of human performance. Rigorous standards are applied to quizzes, test protocols, lab write-ups, exams, and class performance.

**Disability Accommodation:**

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