KINE 5500/6500

Exercise Technology I: Principles of Exercise Testing and Interpretation

Ex Tech I

Spring 2014

Credit Hours: 4 hours; Lec 3, Lab 2

Prerequisites/Co-requisites:  KINE 3680 – Physiology of Exercise

Syllabus revised: 4 Jan 2014

Instructor:  Dr. Jim McDonald               Email: [jrm0013@auburn.edu](mailto:jrm0013@auburn.edu)

Office: Room 169, Kinesiology Building, 301 Wire Road

Office Hours: Tues & Thurs                    Office Phone:  844-1922

1:00 – 3:00 pm

**Required Textbooks**

**Textbook for 5500/6500**

**ACSM's , Guidelines for Exercise Testing and Prescription,**Lippincott, Williams & Wilkins, 2013, 9th Edition, ISBN 0-7817-6903-7

**Additional Textbook for 6500**

**Clinical Exercise Physiology,** Erhman J, Gordon P, Visich P, & Keteyian S., Human Kinetics, 2013, 3rd Edition, ISBN 978-1-4504-1280-3

**Supplemental Textbooks:**

ACSM’s Health-Related Physical Fitness Assessment Manual, Lippincott, Williams & Wilkins, 4rd Edition, 2007, ISBN 0-7817-7549-6

Exercise Physiology**,** Scott Powers & Edward Holley, McGraw Hill, 8th Edition, 2012, ISBN 978-0-07-802253-1

**COURSE DESCRIPTION**

This course has been designed to introduce and develop the knowledge, skills and abilities to function as an exercise professional in fitness and clinical exercise settings.  The topics covered are designed to help the student prepare for certification examinations offered by the **American College of Sports Medicine (ACSM), National Strength & Conditioning Association (NSCA) and American Council on Exercise (ACE)**.

The course will focus on the underlying physiology that is involved in common physical assessments, testing used in clinical and fitness settings, the selection of appropriate assessments, results interpretation and the application of assessment results for exercise prescription and chronic disease risk reduction. Laboratory experiences are designed to develop competencies in physical assessments. Laboratory experiences will include body composition, musculoskeletal fitness, pulmonary function, cardiovascular function, and exercise tests for functional capacity and cardiovascular fitness with electrocardiogram.

**Student Learning Outcomes:**

**After successfully completing this course, you will be able to:**

1. Explain and discuss the underlying principles and rationale for health and fitness screening, blood profile analysis , measurements of heart rate, rhythm and electrical activity, blood pressure, cardiorespiratory fitness (CRF) testing, body composition, pulmonary testing, musculoskeletal fitness and sports related testing.
2. Understand and explain the basic pathophysiology related being sedentary and obese including cardiovascular disease, pulmonary disease, dyslipidemia, hypertension, diabetes, and metabolic syndrome.  Identify general drug groups associated with medical intervention in these diseases.
3. Using pre-test screening to determine the appropriateness of exercise, exercise testing, and cardiovascular disease risk stratification based on blood pressure, cholesterol levels, physical activity or other factors.
4. Understand basic safety considerations for an exercise facility and for exercise testing.  Understand basic treatment for common injuries seen in a exercise facility
5. Use direct and indirect techniques to assess muscular strength, flexibility, and endurance
6. Understand the underlying principles of body composition testing and become familiar with techniques to estimate body composition using the skin-fold methods, bioelectrical impedance, DEXA and anthropometrical techniques.
7. Understand the physiologic basis of blood pressure. Measure systolic and diastolic blood pressures at rest and during exposure to various environmental stressors using a stethoscope and sphygmomanometer
8. Understand the cardiorespiratory changes that occur with exercise and how it can be measured.  Conduct sub-maximal graded exercise tests for the purpose of examining cardiovascular responses to exercise and determining exercise capacity
9. Demonstrate proficiency using metabolic calculations to determine body composition, estimates of cardiovascular capacity, exercise energy expenditure and exercise workloads.
10. Demonstrate the ability to prepare a subject for a 12-lead electrocardiogram.  And be familiar with a normal ECG reading at rest and during a graded exercise test.
11. Understand and discuss exercise testing in sport and identify specific types of testing including agility, speed, power.

**Grading Scale**

There are a maximum of 400 total points available in this course.

Grades "A" = 400 - 364;  "B" = 363 - 328;  "C" = 327 - 292; "D" = 291 - 256; "F" = 255 and below

 Labs (150 Points)

There are 9 laboratory sessions scheduled and each will have an accompanying quiz with 10 points each.   There will be 3 homework assignments associated with the lab work each worth 10 points.  An there will be a lab final worth 30 points. **Attendance at the laboratory is mandatory**.  If you do not attend a lab session you will receive not get credit for the lab quiz for that day. Other consequences of missing a lab are addressed in the attendance policy.

 Exams (250 Points)

There will be a total of 3 exams each worth 50 points and a comprehensive final worth 100 points.  Exams are designed to test your knowledge in areas covered in assigned readings, lectures and laboratory experiences. Make-up exams will only be given for students with documented excused absences. Students with excused absences must be prepared to take the exam on the day they return to class.  The comprehensive final exam, will be administered at the scheduled exam time at the end of the semester.

**Class Policies**

Attendance:  You are expected to attend all classes, lectures will not be repeated or recorded. **Attendance at the laboratory sessions is mandatory.**  An unexcused absence from a laboratory session will result in an one grade drop in the overall course grade.  If there are three unexcused absences the course grade will be  "FA".  Students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.. Excused absences are defined in the Student Policy eHandbook, [www.auburn.edu/studentpolicies](http://www.auburn.edu/studentpolicies).

Make up policy: Arrangements to make up a missed examination due to a properly authorized absence must be initiated by the student within one week of the end of the period of the excused absence.  In unusual circumstances such as an extended absence to illness, the make-up exam will occur within two weeks of the absence.

Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

Honesty Code: Students are expected to do their own work and cheating will not be tolerated.  Please see University policies at [https://sites.auburn.edu/admin/universitypolicies/default.aspx](https://cas.auburn.edu/owa/redir.aspx?C=bc06a9c32636407d8a7ce9284b94e692&URL=https%3a%2f%2fsites.auburn.edu%2fadmin%2funiversitypolicies%2fdefault.aspx)