KINE 5500/6500 - Summer 2013

Credit Hours: 4 hours; Lec 2, Lab 4

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

Instructor: Dr. Jim McDonald Email: jrm0013@auburn.edu

Office: Room 169, Kinesiology Building

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

2:00 – 4:00 pm

5500/6500 TEXTBOOKS

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

ACSM's Health-Related Physical Fitness Assessment Manual, Lippincott, Williams & Wilkins, 3rd Edition, 2007, ISBN 0-7817-7549-6

Supplemental Textbooks:

ACSM's Guidelines for Exercise Testing and Prescription.Lippincott, Williams & Wilkins, 9th Edition, 2009, ISBN 0-7817-6903-7

Practical ECG for Exercise Science and Sports Medicine**,**G. Whyte and S. Sharma, Human Kinetics, 2010, ISBN 978-0-7360-8194-8

COURSE DESCRIPTION

This course will provide you with the knowledge skills and abilities to conduct health and fitness assessments for the normal and special populations and give you the tools to prescribe exercise programs to improve an individual's health and fitness.

The first 5 weeks of the course will be on-line/distance education and will focus on the underlying physiology that is involved in common physical assessments, testing used in clinical and fitness settings, clinical safety, and the pathophysiology associated with various diseases that are related to lack of physical activity. The second 5-weeks will examine the selection of appropriate health and fitness assessments, Techniques for conducting 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 risk assessment, body composition, musculoskeletal fitness, pulmonary function, cardiovascular function, metabolic calculations and exercise tests for functional capacity and cardiovascular fitness with electrocardiogram.

Course Design;

This is a blended course with 49% taught on-line/as distance education, during the first 5 weeks of the Summer Semester and the 51% taught via contact hours focused mainly on building laboratory skills necessary to conduct health and fitness assessments. During the first part of the semester, learning modules will be uploaded to Canvas and a schedule of study for these modules and their accompanying quizzes will be available the first week of class. During the second 5-weeks of class the majority of time will be spent in the laboratory, learning and then practicing various techniques for health and fitness testing. How the laboratory procedures will be discussed on 24 June during class.

Student Learning Outcomes:

After successfully completing this course, you will be able to: Explain and discuss the underlying physiology and principles of health and fitness assessment in accordance with American College of Sports Medicine (ACSM) guidelines. This prepares the student to take either the **ACSM Personal Training** or **Health/Fitness Specialist (HFS) certification.** The course will also provide information and hands on experience that may also assist in preparation for certifications from the **National Strength and Conditioning Association** or the **American Council on Exercise.**

Specific outcomes:

1. Understand basic human physiology to include; control of the internal environment, the impact of exercise on homeostasis and the immune system, basic cell signaling and hormonal response to exercise or lack of exercise, the respiratory system, the cardiac cycle, basic electrocardiogram, responses to exercise, basic nutrition and weight control and exercise prescription for normal and special populations.
2. Understand 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. Know the ASCM guidelines for exercise prescription for normal populations and how these are modified for young, old, pregnant and diseased populations.

Grading Scale

There are a maximum of 400 total points available in this course. Your individual evaluation will be based on the total points you earn throughout the course. For example, an "A" = 360 total points earned or 90%, a "B" = 320 - 359 points earned or 80 - 89%, a "C" = 280 - 319 points earned or 70 - 79%.

Labs (100 Points)

The laboratory schedule will be discussed in class on 24 June. At that time the lab topics and quiz schedule will be outlines. You will be graded on your preparation for the laboratory and your participation. There will be a 8 quizzes given at the beginning designated lab sessions to evaluate your preparation for the laboratory. There will also be a laboratory practical test worth 20 points at the end of class. The labs are worth 20% of your grade. If you do not attend a lab session you will receive a 0 for that class unless you have an excused absence. Attendance at laboratory sessions is mandatory.

On-line Quizzes (100 points)

During the distance learning portion of the class, there will be five quizzes, each worth 20 points. The quizzes will cover the modules assigned the previous week. More information about the quizzes will be supplied by Canvas mail.

Exams (200 Points)

There will be a total of 3 exams including the final; each exam is worth 100 points. Exams are designed to test your knowledge in areas covered in assigned text 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. The first examine will cover topics from the distance learning portion of the course.

Class Policies

Attendance: Attendance at the laboratory sessions is mandatory. Three unexcused absences will result in an "F" and may restrict your ability to enroll in Exercise Technology II. 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.

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