BIOS 4100 Exercise Physiology Fall 2018

Professor: Dr. Mindy Millard-Stafford 894-6274

Lecture – 555 14th St Main lecture hall (1253)

Lab - Exercise Physiology Lab- Room 1506, (555 14th St)

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Office - Room 1309A

Office Hours - by appointment only

Credit: 3 hours (3-0-3)

Prerequisites: **BIOS 3755 OR APPH 3755 OR BIOL 3755 OR BMED 3100**

Meetings: Lecture/discussion – Tues.& Thurs 12:00-1:15

Office hours: T, Thurs 1:00-2:00 (immediately after class) or by appointment

Required Text: Kenney, Wilmore & Costill. Physiology of Sport and Exercise (6th ed.) Human Kinetics 2016

Objectives: 1. To understand and describe the acute and chronic effects of different types of exercise on the structure and function of the human body.

1. To explain the physiological basis of conditioning and training

methods in relation to human health and performance.

1. To familiarize the student with laboratory instruments and procedures to examine and take measurements of physiological responses and adaptations to exercise related to health.

Quizzes: Quizzes will be given in lecture on material

covered in laboratory, lectures and readings.

**No make-up quizzes/tests will be given (unless excused absence). *Absences during tests or quizzes will follow the Dean of Students and Registrar policy***[*http://studentlife.gatech.edu/content/class-attendance*](http://studentlife.gatech.edu/content/class-attendance)

***Test Accommodations are handled by students registering with Disability Services. Please*** alert the instructor with sufficient time to upload exams to Disability Services. <https://disabilityservices.gatech.edu/content/contact-us>

***For any questions involving these or any other Academic Honor Code issues, please consult me or the policy library at:*** <http://policylibrary.gatech.edu/student-affairs/academic-honor-code>

# Evaluation: Midterm test 30%

Final exam 30%

Quizzes (2) 30%

Research Reports 10%

Grading Scale

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 0-59%

**OUTLINE OF COURSE CONTENT**

Aug 23, 25 Introduction: Exercise Physiology – Introduction and History Chapter 1

**Research Report #1 Aug 29 - Dietary analysis**

Aug 30, Sep 1 Chapter 2: Fuel for Exercise: Bioenergetics and Metabolism

Sept 6, 8 Chapter 5: Energy Expenditure and Fatigue

**Research REPORT #2 Introduction to Ergometry and Environmental Measurements Measurement of Physiological Responses to Various Intensities of Cycle Ergometry**

Sept 13, 15 Chapter1: Structure and Function of Skeletal Muscle

***Quiz 1- Sept 15 (first ½ of class period)***

**Research Report#3 Measurement of the Electrocardiogram and Blood Pressure at Rest and during a Graded Exercise Test (GXT)**

Sept 20, 22 Chapter 6: Cardiovascular System and Control

**Research Report # 4, Estimation of Maximal Oxygen Uptake and Measurement of**

**Physical Work Capacity during Treadmill or Cycle Ergometry**

Sept 27, 29 Chapter 8: Cardiorespiratory Response to Acute Exercise

**Research Report #5** Measurement of Anaerobic Power

Oct 4, 6 Chapter 9: Principles of Exercise Training

Chapter 11: Adaptations to Aerobic and Anaerobic Training

Oct 13 Chapter 10: Adaptations to Resistance Training

***Midterm Exam Thursday Oct 13***

**Research Report#6** **Muscular Strength, Endurance and Fatigue**

Oct 18, 20 Chapter 14: Training for Sport

Oct 25, 27 Chapter 20: Exercise Prescriptions for Health & Fitness

Nov 1, 3 Chapter 21: Cardiovascular Disease and Physical Activity

Nov 8, 10 Chapter 15: Body Composition

**Research Report #7- DEMO: Estimation of Body Composition of Anthropometric Measurements, Air Displacement Plethysmography and Dual-Energy X-ray Absorptiometry**

***Quiz 2 – Nov 10***Chapter 22: Obesity, Diabetes, and Physical Activity

Nov 15, 17 Chapter 4 Hormonal Control During Exercise

Nov 22 Chapter 16 Ergogenic Aids in Sport

Nov 29 Chapter 16 Ergogenic Aids in Sport (continued)

**Review of Research Report (#8)**

Dec 1,6 Chapter 12-13: Exercise in Extreme Environments

**FINAL EXAM** Thursday Dec 15 11:30-2:20

### RESEARCH REPORTS

The purpose of the laboratory demonstrations during class is to familiarize you with the methods and techniques used to measure certain physiological responses to exercise and selected aspects of fitness and performance. They provide an opportunity to make and reflect on observations that reinforce concepts presented in class and in the textbook.

Since instructions for the experiences are available in advance, you should **come to the laboratory demo familiar with the theory and procedures.** All lab demo reports will be posted to CANVAS to be completed.

Reports are handed in at the beginning of the following week (by NOON Tues. (start of class). Attach lab report to lab handout and turn in together. Late reports are penalized 1 letter grade per day. No reports are accepted if over 3 days late. The reports are 15% of your final grade (8 total). **Reports are graded on neatness, correctness of data analysis, and content of the answers to the posed questions. I**f a laboratory demo experience is missed, data may be borrowed from another student and the report completed. There is no opportunity for make-up of lab demos.