

## 1. Course Information

### Exercise Physiology

Biology 6xx

3 Credit Hours

Prerequisites: Graduate standing or permission of instructor

Fall 2014

## 2. Professor:

Robert H. Coker, PhD, FACSM

Office: 226 Arctic Health Research Building

Office Hours: 10:00 AM-12:00 PM (MWF), and by appointment

3. Course Readings: Powers S, and Howley E, Exercise Physiology: Theory and Application to Fitness and Performance, Eighth Edition; Also supplementary readings as posted on Blackboard.

4. Course Description: Physiological responses and adaptation to exercise in humans, emphasizing energy metabolism, adipose and lean tissue, central and peripheral components of oxidative metabolism, and the environmental influences on these parameters.

## 5. Course Goals:

The primary focal points of this course are directed at the neural, cardiorespiratory, skeletal, muscular systems, and how they respond and/or adapt to the stress of acute and chronic exercise. The complex interaction between environmental stressors on exercise performance will also be covered. This course will provide a solid foundation for advanced study in the field of exercise physiology.

## 6. Student Learning Outcomes:

1. Demonstrated knowledge of the acute responses and chronic adaptations to aerobic and resistance exercise.
2. Demonstrated knowledge of the physiological assessments for muscular and cardiorespiratory responses to exercise.
3. Demonstrated knowledge of the scientific literature in two areas of investigation.
4. Gain an understanding to research methods in Exercise Physiology.

7. Instructional Methods: A lecture and discussion based model will be used in this course. Students will be given the opportunity to answer questions posed by the Professor. As part of the requirements of the course, students will also make a one brief presentation of a research article that specifically relates to the current section of the course (ie., respiratory, muscle, etc.).

## 8. Course Calendar:

### Class Schedule

09/04/14	Chapter 1	Physiology of Exercise in the US: Past and Future
09/09/14	Chapter 2	Control of the Internal Environment
09/11/14	Chapter 3	Bioenergetics
09/16/14	Chapter 4	Exercise Metabolism
09/18/14	EXAM 1	
09/23/14	Chapter 5	Hormonal Responses to Exercise
09/25/14	Chapter 6	Measurement of Work, Power, and Energy Expenditure
09/30/14	Chapter 7	The Nervous System: Structure and Control of Movement
10/02/14	Chapter 8	Skeletal Muscle: Structure and Function

10/07/14	EXAM 2	
10/09/14	Chapter 9	Circulatory Adaptations to Exercise
10/14/14	Chapter 10	Respiration during Exercise
10/16/14	Chapter 11	Acid Base Balance during Exercise
10/21/14	Chapter 12	Temperature Regulation
10/23/14	Chapter 13	The Physiology of Training: Effect on VO <sub>2</sub> max, performance, homeostasis and strength
10/28/14	EXAM 3	
10/30/14	Chapter 14	Patterns in Health and Disease: Epidemiology and Physiology
11/04/14	Chapter 15	Work Tests to Evaluate Cardiorespiratory Fitness
11/06/14	Chapter 16	Exercise Prescriptions for Health and Fitness
11/11/14	Chapter 17	Exercise for Special Populations
11/13/14	Chapter 18	Body Composition and Nutrition for Health
11/18/14	Chapter 19	Factors Affecting Performance
11/20/14	Chapter 20	Work Tests to Evaluate Performance
11/25/14	Chapter 21	Training for Performance
12/02/14	Chapter 22	Training for Female Athlete, Children, and Special Populations
12/04/14	Chapter 23	Nutrition, Body Composition, and Performance
12/09/14	Chapter 24	Exercise and the Environment
12/11/14	Chapter 25	Ergogenic Aids
TBA	EXAM 4 – Final	

**9. Course Policies:** Honor Code and Plagiarism: Students will be expected to uphold the UAF standard of conduct for students relating to academic dishonesty. Students will assume full responsibility for the content and integrity of the academic work submitted by them during the course. For the student code or additional information, please use the following URL  
<http://www.uaf.edu/catalog/current/academics/regs3.html>

#### **10. Evaluation:**

Student performance will be based on four primary components 1) exams, 2) quizzes, 3 oral presentation, and 4) two literature reviews on two topics relevant to the course. The sum of these four components = 100 points.

**Calculation of Grade:** In brief, A = 90-100, B = 80-89, C = 70-79, D = 65-69, F = 64 or below. The grade in the course will be based on the accumulation of 100 possible points described above.

**Exams:** Four exams will be given during the course, including a final exam. One of these exams will be administered and graded prior to mid-term so that students can accurately assess their initial performance in the course. Each exam will be worth 10 points for graduate students.

**Quizzes:** Ten quizzes will be given during or following lecture. Each quiz will be worth one point, and is designed to promote attendance and reinforce acquisition of core objectives.

**Oral Presentation:** Worth 10 points towards the final grade, each student will present one research article in the field of exercise physiology. This article will be specifically relevant to the section discussed. Students will cover the rationale, methods, results and discussion sections of the article.

*Literature Review:* Each of the literature reviews will be worth 20 points highlighting the importance of scientific interpretation in the field of exercise physiology. The review should include the following components: 1) General Statement of the Topic, 2) References to Previous Research, 3) Existing Gaps in Knowledge, and 4) References to Ongoing Studies related to the Topic. Generally speaking, 5 points will be assigned to each of these sections and evaluated accordingly.

11. Support Services: Tutoring is not specifically available but students are urged to contact Dr. Coker to get additional guidance on course material.

12. Disabilities Services: The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities. *\*\* If students require any assistance due to documented disability, please make the Professor aware of this important need by the 2nd week of semester, and they will make the necessary accommodations.*