

## EXS4050 Syllabus Exercise Physiology

**Instructor:** Andrew (Tony) Pustina PhD, CSCS, USAW II, ISAKII  
Phone: 262-551-6174  
Office Hours: MWF 9:05 – 10:30am

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**Course Description:** MWF 10:30 -11:35pm; TARC 2020; 4 Credit Hours.

This course is designed to provide the students with an introduction to the discipline of exercise & sport physiology, which is concerned with the study of how the body adapts physiologically to the acute stress of exercise, or physical activity, and the chronic stress of physical training. Emphasis will be placed on neuromuscular adaptation to strength training and cardiorespiratory adaptations to endurance training. This course will also address the importance of exercise in delaying or preventing metabolic syndrome.

**Text:** Physiology of Sport and Exercise 7th ed. By Kenney, Wilmore, and Costill. ISBN-13: 978-1450477673

**Course Format:** Lecture, lab, and discussion.

### Scientific Literacy

1. Describe the difference between hypothesis and scientific theory in exercise physiology.
2. Identify valid scientific evidence and differentiate it from opinion.
3. Give examples of the scope and limitations of science in exercise physiology.
4. Correctly use scientific language to describe phenomena in exercise physiology.
5. Explain interrelationships between metabolic pathways and adaptations to training.

### Scientific Reasoning

1. Use observation and measurement as primary forms of evidence to study fatigue.
2. Distinguish between science and pseudoscience
3. Describe the uncertainty and error in scientific data
4. Evaluate the plausibility of their experimental and calculation results
5. Apply scientific results to creating training programs.

### Course Objectives:

1. Describe the impact of both acute and chronic exercise.
2. Describe the mechanisms of muscle contraction and muscle fiber types.
3. Define and describe the basic energy systems and the metabolic adaptations to training.
4. Describe the cardiovascular and respiratory function during exercise and adaptations to training.
5. Identify and explain the neuromuscular adaptations to strength and anaerobic training.
6. Apply the principles of training and develop an annual training plan.
7. Evaluate the effectiveness of popular ergogenic aids and other macronutrients.
8. Describe disease states related to obesity and be able to measure skinfolds according to ISAK.

### Course Grade:

A	94- 100%	A-	90- 93%		
B+	87 – 89%	B	84 – 86%	B-	80 – 83%
C+	77 – 79%	C	74 – 76%	C-	70 – 73%
D	64 – 66%	D-	60 – 63%	D+	67 – 69%
F	< 60%				

**Tests:** Five exams will include essay, short answer, fill-in-the-blank, and multiple-choice questions. Questions will test your knowledge and application of the assigned readings, power points, and labs. The final exam will be cumulative.

**Quizzes:** Twelve quizzes, one for each chapter reading/lecture.

**Labs:** Five Labs will be completed during the course.

**Participation:** It is critically important that students help to generate a positive classroom setting for higher learning. This requires that you complete assigned readings before class, openly participate in demonstrations, share your understanding with others, answer questions, and be willing to share your own experiences (as they relate to exercise physiology).

## University and Instructor Policies

### **Communication**

On MWF, my door is always open, so if you have a question please stop by.

Our class website can be found Schoology. You are responsible for announcements and documents that are placed on Schoology. You have the ability to check your grade on this site and are responsible for doing so to avoid grade discrepancies or possible errors. In addition, all students are required to use their Carthage email accounts.

### **Attendance policy**

Attendance is extremely important for students to successfully complete the requirements of this course. Therefore, it is highly suggested that students attend every meeting of this course. Students are responsible for all work that is assigned during classes that are missed.

**Students will be allowed 3 absences. Each unexcused absence over 3 will result in a 10-point reduction in overall grade that will be applied at the end of the semester.**

**Officially Excused Absences:** (1) due to a medical issue that has been confirmed by a doctor and/or the Dean of Students' Office (COVID-19); or (2) because of participation at an official Carthage event as part of their membership in a Carthage organization or membership on a Carthage athletic team, instructors are expected to make reasonable accommodations that allow students to address missed class time and/or missed work related to their absence.

### **Practice Good Time Management and Organization Skills**

You should expect to spend about 3 hours and 15 minutes in class each week, and on average 4-6 hours each week reading, studying, and completing quizzes. In other words, you should dedicate about 8 hours each week to this course in order to earn an average grade or better.

### **Learning Accessibility Service**

Carthage College strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers due to your disability (including mental health, learning disorders and chronic medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, you also need to register with Diane Schowalter in Learning Accessibility Services ([dschowalter1@carthage.edu](mailto:dschowalter1@carthage.edu)).

## ACADEMIC INTEGRITY STATEMENT:

The integrity of the classes offered by Carthage College or any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For more information regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Academic Honesty Guidelines:

<https://www.carthage.edu/community-code/academic-concerns/academic-honesty-guidelines/>

Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me *before* the assignment is due to discuss the matter.

## Schedule

Readings should be completed *prior* to class. Lectures should be reviewed after each class. Content should be reviewed often, rather than crammed prior to exams. Repetition of terminology and concepts will help you to prepare for the final exam (which is cumulative), as well as to retain the information for your future career.

**THIS SYLLABUS AND SCHEDULE ARE NOT INTENDED TO BE ALL INCLUSIVE AND WILL BE CHANGED AS CIRCUMSTANCES DICTATE. ANY SUBSTANTIVE CHANGES THAT ARE MADE WILL BE PRESENTED IN CLASS.**

No Class

Exam

Lab

Week	Monday	Wednesday	Friday
1	9/6 No Class	9/8 Intro & Syllabus Ch 3	9/10 Ch 3 Nervous System
2	9/13 1 Excitation-Contraction C	9/15 1 MU & Fiber Type	9/17 1 Size Principle
3	9/20 2 Anaerobic Metabolism	9/22 2 Aerobic Metabolism	9/24 2 Where does fat go?
4	9/27 Review for First Exam-Kahoot	9/29 Ch 1-3 Exam	10/1 Wingate Lab
5	10/4 4 Hormone Response	10/6 5 Energy Expenditure	10/8 5 Fatigue (occlusion lab)
6	10/11 4&5 Exam	10/13 6 Heart Extrinsic Control	10/15 6 Hemodynamics Pass Out
7	10/18 HR & BP Lab	10/20 6 Heart Electrophysiology	10/22 YMCA Lab
8	10/25 Fall Break	10/27 7 Ventilation	10/29 7 Control of Breathing
9	11/1 8 Acute Resp. Exercise	11/3 8 Acute Resp. Exercise	11/5 Ch 6-8 Exam
10	11/8 CH 9 Training Principles	11/10 CH 9 Training Principles	11/12 10 Resistance Train. Adap
11	11/15 10 Resistance Train. Adap	11/17 11 Aerobic/Anaerobic	11/19 Ch 9-11 Exam
12	11/22 14 Response To Training	11/24 Thanksgiving	11/26 Thanksgiving
13	11/29 14 Periodization	12/1 14 Annual Plan	12/3 Body Comp Lab
14	12/6 15 Nutrition	12/8 15 Nutrition for Sport	12/10 22 Metabolic Syndrome
15	12/13 22 Obesity and Review Kahoot	12/15 FINAL EXAM THURSDAY 10:30	12/17