

HPE\*K241 Exercise Physiology with Lab

Instructor: Michael Schroeder

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### **Course Description:**

This class will cover physiological responses and adaptations to exercise. Topics in this course will include neuromuscular, metabolic, cardiovascular, hormonal, and respiratory systems as they pertain to acute and chronic exercise. The major goal of the class is to develop a basic understanding of exercise physiology that will (1) allow the student to utilize exercise physiology in their daily lives and future profession, and (2) prepare the student to take additional courses in exercise science.

### **Course Outcomes:**

Upon the completion of this course the student will have:

1. Knowledge of the basic anatomy of the cardiovascular system and respiratory system
2. Ability to distinguish between aerobic and anaerobic metabolism
3. Knowledge to describe the normal acute responses to cardiovascular exercise
4. Knowledge to describe the normal acute responses to resistive training
5. Knowledge of the normal chronic physiologic adaptations associated with cardiovascular exercise
6. Knowledge of the normal chronic physiological adaptations associated with resistance training
7. Knowledge of the structure and function of the skeletal muscle fiber
8. Knowledge of the characteristics of fast and slow twitch muscle fibers
9. Knowledge of the sliding filament theory of muscle contraction
10. Knowledge of twitch, summation, and tetanus with respect to muscle contraction
11. Knowledge of and ability to describe the implications of ventilatory threshold (anaerobic threshold) as it relates to exercise training and cardiorespiratory assessment
12. Explain the metabolic and hormonal control of fuel for exercising muscle
13. Describe the neural control of exercising muscle
14. Explain how energy is expended during exercise and its effects on fatigue
15. Explain the principles of thermoregulation and describe how the body responds to exercise in hot and cold environments
16. Describe how the body responded to exercise at altitude
17. Explain sound principles for optimizing body composition and nutrition for sport

### **Instructional Materials**

Required Text:

Plowman, S. *Exercise Physiology for Health, Fitness, and Performance*, 4<sup>th</sup> ed. Philadelphia, PA: Lippincott Williams, & Wilkins.

Suggested Text:

Delavier, F. 2010 Strength Training Anatomy, 3<sup>rd</sup> ed. Champaign, IL: Human Kinetics

**College Statement on Academic Integrity:**

“Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person’s ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor.”

**Academic Misconduct:**

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity, and can request temporary removal or exclusion from the classroom of any student engaging in conduct that violates the general rules and regulations of institution. Extended or permanent exclusion from lecture or laboratory activities or further disciplinary action can only be effected through appropriate procedures of institution.

Plagiarism, cheating on quizzes or tests, or any form of academic dishonesty is strictly prohibited. Students guilty of academic dishonesty directly or indirectly will receive a zero for the exercise, quiz, or test and may receive an “F” grade for the course in addition to other possible disciplinary sanctions which may be imposed through the regular institutional procedures. Any student that believes that erroneous accusations have been made, may appeal the case through the appropriate institutional procedures if the student’s grade is affected.

**Schedule:**

Week 1: 8/30 and 9/4	Introduction and Bioenergetics
Week 2: 9/4 and 9/6 ( <b>NO CLASS 9/4</b> )	Bioenergetics Continued
Week 3: 9/11 and 9/13	Anaerobic and Aerobic Metabolism During Ex.
Week 4: 9/18 and 9/20	Anaerobic and Aerobic Cont.
Week 5: 9/25 and 9/27	Metabolic Training Principles and Adaptations
Week 6: 10/2 and 10/4 ( <b>EXAM 1 10/4-Labs Due</b> )	Metabolic Training Cont. and EXAM 1
Week 7: 10/9 and 10/11	Nutrition for Fitness and Athletes
Week 8: 10/16 and 10/18	Body Composition
Week 9: 10/23 and 10/25	Body Comp and Weight Control
Week 10: 10/30 and 11/1 ( <b>Exam 2 11/1-Labs Due</b> )	Body Comp and Weight Control Cont.
Week 11: 11/6 and 11/8	Respiration
Week 12: 11/13 and 11/15	Respiration Cont.
Week 13: 11/20 and 11/22 ( <b>NO CLASS 11/22</b> )	Cardiovascular System
Week 14: 11/27 and 11/29	Cardiovascular Cont.
Week 15: 12/4 and 12/6	Abstract Presentations
Week 16: 12/11 ( <b>Final Exam- Final Labs Due</b> )	<b>FINAL EXAM WEEK – date &amp; time TBA</b>

### **Grade Determination:**

<u>Evaluation</u>	<u>Mode</u>	<u>Percent of Grade</u>
Homework Assignments (Weekly)		5
Quizzes (Weekly)		5
Lab Journal		15
Abstract Presentations		10
Exam #1		20
Exam #2		20
Exam #3 (Non-cumulative final)		25

### **Make-Up Work:**

Any assignment can be obtained from the instructor or on blackboard. Unit exams can only be made up by special arrangement with the instructor. Make-up exams will be granted on an individual basis only following a conference with the instructor. Reason(s) for missing the exam must be determined as beyond the control of the student such as illness, death in the family, or change in condition of employment. If two exams are missing during the semester and/or if the final exam is missed, the student will receive an "F" grade if the student is failing any other parts of the course or an "I" if the student is passing **ALL** other parts of the course.

### **Revisions to the Syllabus:**

Students are responsible for learning all of the objectives and all of the items in the course outline, whether they are discussed in lecture and/or lab or not. The instructor reserves the right to revise the objectives, topic outline, or academic schedule contained in the syllabus without notice. However, if revisions affect scheduled unit exams, a 48-hour notice will be given for the new test date.

### **Technology:**

Cellular phones and smart watches are only allowed in class or lab if they are turned off or in silent mode. Under no circumstances are phones to be answered in class. When there are extenuating circumstances that require a student be available via smart device, that student must speak to the instructor prior to class, so that together they can arrive at an agreement.

**College Closing:**

College Closing Notification of cancellation due to inclement weather, whether on-campus or at off-campus locations, will be available by telephone by 6:00am for daytime classes and by 2:30pm for evening classes by calling the College's main telephone at (860) 215-9000, pressing 1, and listening to the taped announcement. In addition, delays or further information will be announced on the following:

Radio Stations: WBMW 106.5 FM - Ledyard WDRC 1360 AM – Hartford WERI 1230 AM – Westerly WICH 1310 AM/WCTY 97.7FM – Norwich WINY 1350 AM – Putnam WLIS 1420 AM - Old Saybrook WNLC 1510 AM/WTYD - 100.9 FM - New London WQGN 105.5 – Groton WSUB 980 AM - New London WVVE 102.3 – Stonington

Television Stations: Channel 3 WSFB – Hartford Channel 4 WVIT 30 - Hartford - New Britain Channel 8 WTNH - New Haven

**Special Notes:**

If you have visible or hidden disability which may require classroom, lab, and/or test-taking modifications, please see me as soon as possible. If you have not registered with Matt Liscum, learning specialist, or a counselor in the Student Services Development Center, you must do so early in the semester.

<b>College Disabilities Service Provider</b>	
Matt Liscum, Counselor  (860) 215-9265  Room A113	<ul style="list-style-type: none"><li>• Learning Disabilities</li><li>• ADD/ADHD</li><li>• Autism Spectrum</li><li>• Mental Health Disabilities</li></ul>
Elizabeth Willcox, Advisor  (860) 215-9289  Room A113	<ul style="list-style-type: none"><li>• Medical Disabilities</li><li>• Mobility Disabilities</li><li>• Sensory Disability</li></ul>