

POINT LOMA NAZARENE UNIVERSITY  
Department of Kinesiology  
KIN340 Physiology of Exercise  
Spring 2018

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<b>Instructor:</b>	Josh Dexheimer PhDc, CSCS, USAW, PES
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<b>Time:</b>	MWF: 8:30-9:25am; 11-11:55am
<b>Location:</b>	Kinesiology 2
<b>Office Hours:</b>	M: 12-2 pm; F: 12-2pm Or by appointment

**PLNU Mission**  
**To Teach ~ To Shape ~ To Send**

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

If you have any questions about the material in this course, feel free to contact me via email or schedule an appointment.

**\*\*I am here to help you in whatever way you need. Feel free to come to me with questions about the course, your life, your future, your career, or anything else that comes up. **You all matter greatly to me.****

**I. Catalog Description:**

A study of the effects of vigorous physical activity upon the systems of the body; development of an understanding of factors which constitute training of the human body for high levels of health and physical performance.

**\*Course Credit Hour Information:** In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit

hour policy for a 3 unit class delivered over 16 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request.

## **II. Student Learning Outcomes:**

**After completion of this course students will be able to:**

1. Demonstrate a working knowledge of the structure, function, and physiological concepts surrounding exercising skeletal muscle.
2. Demonstrate a working knowledge of the essentials of human metabolism and bioenergetics with a special focus on how they relate to physical activity.
3. Demonstrate the skills necessary to measure and compute energy expenditure and fatigue.
4. Demonstrate a working knowledge of hormonal activity during exercise.
5. Demonstrate a working knowledge of the physiology of the cardiovascular system with special emphasis on how it works under conditions of vigorous physical activity.
6. Demonstrate a working knowledge of the physiology of the respiratory system with special emphasis on how it works under conditions of vigorous physical activity.
7. Demonstrate a working knowledge of the muscular, cardiovascular, and respiratory acute and chronic responses to physical activity.
8. Demonstrate a working knowledge of the general principles of endurance and resistance exercise training.
9. Describe the adaptations to resistance and endurance exercise training.
10. Manipulate a resistance training program to invoke different physiological responses.
11. Demonstrate a working knowledge of the effects of exercise in cold, heat, and altitude extremes.
12. Demonstrate a working knowledge of ergogenic aids and how they physiologically may improve performance.
13. Describe the pathogenesis of type 2 diabetes, cardiovascular disease, and sarcopenia.
14. Describe the physiological effects of exercise on the pathogenesis of cardiovascular disease, type 2 diabetes, and sarcopenia.

### **Core Competencies Assessed in this course**

1. Quantitative literacy is assessed with the “VO<sub>2</sub>max lab worksheet” (see assignments below)
2. Critical Thinking is assessed with the “Final Concept Map Paper” (see assignments below)
3. Information Literacy “Final Concept Map Paper” (see assignments below)
4. Writing Communication “Final Concept Map Paper” (see assignments below)

## **III. Required Materials**

1. **Textbook:** Kenney WL, Wilmore JH, and Costill DL. Physiology of Sport and Exercise. Human Kinetics Publishing Co., Champaign, IL, **6<sup>th</sup> Edition**, 2011.

## **IV. Educational Opportunities**

1. **Quizzes:** Quizzes will be administered via Canvas. The quiz will be on material discussed in previous class meetings. Quizzes will be online and worth 10 points.

2. **Concept Maps 1 & 2:** Information from class notes and the textbook will be used to create flow diagrams explaining a muscular contraction from the nerve impulse to cross-bridge formation and contraction/relaxation (#1) and acute and chronic cardiopulmonary responses/adaptations to aerobic exercise (#2). Students will use the free concept map website bubbl.us. For each account made on bubbl.us you can make 3 mind maps. The maps must be exported as an image and uploaded to canvas before the due date and time.
3. **Final Concept Map:** This will be a more detailed concept map with students able to pick **one** of the two following topics: the effects of prolonged (3 months at least) endurance exercise training on atherosclerosis or progressive resistance training (3 months at least) on sarcopenia and aging. The map must be accompanied by a short paper, maximum 1 page paper, explaining each portion of the map. You will need to use 5 peer-reviewed references as your sources for this concept map. Do not use a review article.
4. **Fuel for Exercise Paper:** Information from class notes and the textbook will be used to construct a half page to one page paper on the topic of “Fuel for Exercise”. Students will be limited to 500 words, using Aerial font size 11. Half-inch margins will be used all around. Students will be provided the prompt on canvas.
5. **Lab Reports:** There will be a short lab report due 1 week after each laboratory experience in the class. Most labs will consist of volunteers from class participating in the exercise testing then each student individually completing the report.
6. **Classroom Participation:** Class attendance and participation is key to your success in class and you will receive points based on your attendance and participation. If you miss class you will not receive points for that day. You cannot participate if you are not present.
7. **Lecture Exams:** The exams will be designed to test the students’ comprehension of material in the previous sections and new material presented via lectures and independent studying of the textbook. Questions will include: multiple choice, fill in the blank, matching, true/false, and short answer format.
8. **Final Exam:** The final exam will have a new material portion worth 50 points and a cumulative portion worth 100 points. The cumulative portion will be in a “Major Concepts” format. Information from the entire semester will be tested. The Major Concepts format means that student will only be tested on the large and most important concepts of the course.

**V. Course Grading:**

Item	Points	Total Points
1. Quizzes	12 @ 10 points each	120
2. Exams	3 @ 100 points each	300
3. Concept Maps 1&2	2 @ 25 points each	50
4. Fuel for Exer. Paper	1 @ 25 points	25

2. Participation	1 @ 100 points each	100
5. Lab Reports	2 @ 25 points each	50
7. Final Concept Map	1 @ 75 points	75
8. Final Exam	1 @ 150 Points	150
<b>Total</b>		<b>870</b>

<u>Grade</u>	<u>Percentage Points</u>
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	62-66
D-	60-62
F	0-59

## VI. Course Guidelines

1. **Attendance:** Students are required to attend class every class period unless they notify the professor in advance. Excused absences for emergencies are accepted with notification ASAP. Role will be taken at the start of each class. Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member has the option of filing a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF consistent with university policy in the grading section of the catalog. See [Academic Policies](#) in the (undergrad/graduate as appropriate) academic catalog.
2. **Late Work:** Late assignments will be deducted 20% and if over 1-week late the resulting score will be a 0. If you use a Mac and turn in a “pages” format document it will be counted as late until turned in as a Word Document. **“Pages” will not be accepted.**
3. **Make-Ups:** Make up exams/quizzes will be given only if the professor is notified of the excused absence prior to the missed class or if the student has a legitimate emergency. No make-up labs will be allowed.
4. **Email:** Email will be a main form of communication used by the professor outside of class as well. Students are expected to check their email at least on a daily basis. If you

know of issues with your @pointloma.edu account please notify the professor immediately.

5. **Academic Accommodations:** While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may request academic accommodations. At Point Loma Nazarene University, students must request that academic accommodations by filing documentation with the [Disability Resource Center](#) (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student’s instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. See [Academic Policies](#) in the (undergrad/graduate as appropriate) academic catalog.
6. **Cheating and Plagiarism:** Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit; such acts also include assisting another student to do so. Plagiarism is a specific form of cheating which consists of the misuse of the published and/or unpublished works of others by misrepresenting the material (i.e., their intellectual property) so used as one's own work. Penalties for cheating and plagiarism range from a 0 or F on a particular assignment, through an F for the course, to expulsion from the university. For more information on the University's policy regarding cheating and plagiarism, refer to the student handbook:  
[http://www.pointloma.edu/Handbook/Policies/Academic\\_Honesty.htm](http://www.pointloma.edu/Handbook/Policies/Academic_Honesty.htm)
7. **FERPA Policy:** In compliance with federal law, neither PLNU student ID nor social security number should be used in publicly posted grades or returned sets of assignments without student written permission. This class will meet the federal requirements by (Note: each faculty member should choose one strategy to use: distributing all grades and papers individually; requesting and filing written student permission; or assigning each student a unique class ID number not identifiable on the alphabetic roster.). Also in compliance with FERPA, you will be the only person given information about your progress in this class unless you have designated others to receive it in the “Information Release” section of the student portal. See [Policy Statements](#) in the (undergrad/ graduate as appropriate) academic catalog.

## VII. Tentative Course Schedule

Date	Topic	Assignment Due	Required Reading
1/9 (T)	Introduction/Skeletal Muscle		Chapter 1
1/10 (W)	Skeletal Muscle		Chapter 1
1/12 (F)	Skeletal Muscle/Neural Control		Chapter 3
1/15 (M)	<b>MLK Day</b>		
1/17 (W)	Skeletal Muscle/Neural Control	<b>Quiz #1</b> (Class on the Track)	Chapter 3

1/19 (F)	Metabolism/Bioenergetics		Chapter2
1/22 (M)	Metabolism/Bioenergetics	<b>Quiz #2</b>	Chapter 2
1/24 (W)	Metabolism/Bioenergetics	(Class on the Track)	Chapter 2
1/26 (F)	Hormonal Control	<b>Quiz #3</b>	Chapter 4
1/29 (M)	Hormonal Control		Chapter 4
1/31 (W)	<b>Review #1</b>	<b>Concept Map #1 Due</b>	
2/2 (F)	<b>Exam #1</b>	<b>Exam #1</b>	
2/5 (M)	Energy Expenditure/Fatigue		Chapter 5
2/7 (W)	Energy Expenditure/Fatigue		Chapter 5
2/9 (F)	<b>EE/EPOC Lab</b>	<b>Quiz #4</b> (Class in Rohr 112)	
2/12 (M)	Energy Expenditure/Fatigue		Chapter 5
2/14 (W)	Cardiovascular		Chapter 6
2/16 (F)	Cardiovascular/Respiratory	<b>Quiz #5 Lab #1 Due</b> (Class on the Track)	Chapter 6 and 7
2/19 (M)	Respiratory		Chapter 7
2/21 (W)	Cardiopulmonary Response to exercise		Chapter 8
2/23 (F)	<b>VO<sub>2max</sub> Lab</b>	<b>Quiz #6</b> (Class in Rohr 112)	
2/26 (M)	Cardiopulmonary Response to exercise		Chapter 8
2/28 (W)	Cardiopulmonary Response to exercise		Chapter 8
3/2 (F)	Cardiopulmonary Response to exercise	<b>Quiz #7 Lab #2 Due</b> (Class on the Track)	Chapter 8
<b>3/5-9</b>	<b>Spring Break</b>		
3/12 (M)	<b>Review Day #2</b>	<b>Fuel for Exercise Paper Due</b>	
3/14 (W)	<b>Exam #2</b>	<b>Exam #2</b>	
3/16 (F)	Training Principles		Chapters 9, 14, PPT
3/19 (M)	Training Principles /Adaptations to resistance training	(Class on the Track)	Chapter 10, PPT
3/21 (W)	Adaptations to resistance training		Chapter 10, PPT
3/23 (F)	Adaptations to endurance training	<b>Quiz #8</b>	Chapter 10, PPT
3/26 (M)	Adaptations to endurance training	(Class on the Track)	Chapter 10, PPT
3/28 (W)	Exercise in the cold		Chapter 12
<b>3/29-4/2</b>	<b>Easter Break!</b>		
4/4 (W)	Exercise in the heat		Chapter 12
4/6 (F)	Exercise in the altitude	<b>Quiz #9</b>	Chapter 13
4/9 (M)	Exercise in the altitude		Chapter 13

4/11 (W)	<b>Review #3</b>	<b>Quiz #10 Concept Map #2 Due</b>	
4/13 (F)	<b>Exam #3</b>	<b>Exam #3</b>	
4/16 (M)	Aging and Exercise		Chapter 18, PPT
4/18 (W)	Aging and Exercise		Chapter 18, PPT
4/20 (F)	Obesity and Nutrition	<b>Quiz #11</b>	Chapters 22 and 15
4/23 (M)	Obesity and Nutrition		Chapters 22 and 15
4/25 (W)	CVD and Physical Activity		Chapter 21
4/27 (F)	CVD and Physical Activity	<b>Quiz #12</b>	Chapter 21
	<b>Ergogenic Aids</b>	<b>(If we can get to it)</b>	<b>Chapter 16</b>
See section #	<b>Final Concept Map: Wednesday 11:59pm Final Exam: Section 2 Friday 10:30am-1pm</b>		

**Final Exam:** Successful completion of this class requires taking the final examination **on its scheduled day**. The final examination schedule is posted on the [Class Schedules](#) site. No requests for early examinations or alternative days will be approved.