

Fall 2020 Quad 2

Meeting days: Mondays 10/26-12/18	Instructor title and name: Dr. Heidi Lynch, PhD, RDN
Meeting times: 5:00-7:00 pm	Phone: x3306 (619-806-3306)
Meeting location: Online	E-mail: hlynch@pointloma.edu
Final Exam: due online by Friday, 12/14 11:59 pm	Office location and hours: On Zoom or by phone

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 is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

This course provides an advanced understanding of the clinical effects and physiologic adaptations of the human body to exercise interventions. The effects of exercise on the organ systems of the body will be explored through lecture and laboratory experiences with an emphasis toward combatting obesity, diabetes, and metabolic syndrome. The clinical application of current research will occur in lab settings.

COURSE LEARNING OUTCOMES

1. Demonstrate a working knowledge of the **3 ATP-producing systems** of the human cell.
2. Demonstrate a working knowledge of **substrate utilization** during rest and exercise.
3. Demonstrate a working knowledge of **maximal oxygen consumption (VO₂ max)** including physiological limiters, practical uses, and performance applications.
4. Demonstrate a working knowledge of the **lactate threshold** including physiological determinants, practical uses, and performance applications.
5. Demonstrate a working knowledge of **maximal steady state of exercise** including physiological determinants, practical uses, and performance applications.
6. Demonstrate a working knowledge of **basic VO₂ kinetics**.
7. Demonstrate a working knowledge of the underlying pathophysiology, onset, and **effects of exercise on preventing and treating the following diseases:**
 1. Cardiovascular disease

2. Type II Diabetes
3. Obesity
4. Cancer
5. Osteoporosis
6. Cognitive Impairment
8. Demonstrate a working knowledge of the physiological factors involved in **energy balance**, weight loss, weight maintenance, and weight gain.
9. Demonstrate the ability to analyze and interpret the data outputs from **standard exercise tests** including Wingate, 3-minute all-out test, metabolic measurement testing during rest and exercise, and maximal oxygen uptake testing.
10. Demonstrate the ability to **apply physiology knowledge to exercise test results**.
11. Demonstrate the ability to read and **critically analyze peer-reviewed journal articles** in the field of exercise physiology.

COURSE SCHEDULE AND ASSIGNMENTS

Rubrics for the article presentation, lab reports, take-home exams, and synthesis table are posted on Canvas under each assignment's directions.

1. **Readings:** Peer-reviewed journal articles posted on Canvas for each week.
2. **Quizzes:** Most classes begin with a quiz based on the readings for the week.
3. **Lecture/discussion:** Most classes will consist of ~90 minutes of lecture and classroom discussion. This time will be spent giving background information on the weekly topics and exploring the physiology of the processes being discussed.
4. **Article presentations:** During each class, 2-3 students will present a research article to the class. Each student will present an article one time during the quad.
5. **Laboratory:** A portion of the class will involve conducting exercise testing on the students in the class. This will be an opportunity for students to see, experience personally, and conduct some of the standard exercise physiology laboratory testing procedures. **Note for Fall 2020: given that we are in an online environment due to COVID-19, I have uploaded pre-recorded videos of my husband as the participant that we filmed for my undergraduate exercise physiology class. You will watch the videos to get a sense of what our lab looks like and what the test entails, and then you will complete the lab reports with the posted data on Canvas.**
6. **Lab reports:** There will be two laboratory reports during the quad. Students will use the results of the exercise tests conducted in the laboratory portion of the class to answer physiology-based questions in order to put the basic understanding of physiology into practical use.
7. **Take-home exams:** Each of the three take-home exams will be short answer and essay format. The emphasis will be on students gaining an understanding of the concepts discussed in class to the extent that they can apply them to practical situations.
8. **Synthesis table:** Students will use the research articles read for class and any other peer-reviewed research articles they find necessary to fill in the synthesis table. The template will be provided on Canvas.

DATE	LOCATION	CLASS CONTENT OR ASSIGNMENT	ASSIGNMENT DUE DATE
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Week 1	10/26	Online	Class: Muscle contraction, metabolism, substrate utilization Lab: Wingate and critical power	Quiz 1
Lab 1 due by 11:59 pm on Sunday, 10/28 on Canvas				
Week 2	11/2	Online	Class: VO_{2max} , Fick equation Lab: Metabolic cart overview, VO_{2max} test	Quiz 2
Week 3	11/9	Online	Class: Critical power, lactate threshold, VO_2 kinetics Lab: VO_2 kinetics, EPOC, EE calculation	Quiz 3
Lab 2 and take-home exam 1 due by 11:59 pm on Sunday, 11/11 on Canvas				
Week 4	11/16	Online	Cardiovascular disease	Quiz 4
Week 5	11/23	Online: Thanksgiving week	Cardiovascular disease	Quiz 5
Synthesis table due by 11:59 pm on Sunday, 11/25 on Canvas				
Week 6	11/30	Online	Type II diabetes	Quiz 6
Take-home exam 2 due by 11:59 pm on Sunday, 12/2 on Canvas				
Week 7	12/7	Online	Obesity and energy balance	Quiz 7
Week 8	12/9	Online	Group presentations	
Take-home exam 3 due by 11:59 pm on FRIDAY, December 14 on Canvas				

REQUIRED MATERIALS AND RECOMMENDED STUDY RESOURCES

Required: peer-reviewed research articles posted on Canvas

Recommended:

1. *Exercise Metabolism*, Hargreaves and Spriet. Second Edition, Human Kinetics. ISBN-10:07360-4103-6
2. *Exercise Physiology: Human Bioenergetics and Its Applications*. Brooks, Fahey, and Baldwin. Fourth Edition, McGraw Hill. ISBN-10: 0072556420
3. Please take advantage of our library's resources! <http://libguides.pointloma.edu/kinesiology>
Our librarians are very responsive and helpful.

ASSESSMENT AND GRADING

Item	Points per assignment	Total points	Percent of total points
1. Take Home Exams	3 @ 100 points each	300	~46%
2. Group Presentation	1 @ 50 points	50	~8%
3. Lab Write ups	2 @ 50 points each	100	~15%
4. Article Presentation	1 @ 30 points each	30	~5%

5. Quizzes	7 @ 10 points	70	~11%
6. Synthesis Table	1 @ 100 points	100	~15%
Total		650	100%

Grade scale (percentage):

A=93-100	C=73-76
A-=92-90	C-=70-72
B+=87-89	D+=67-69
B=83-86	D=63-66
B-=80-82	D-=60-62
C+=77-79	F=0-59

Students must complete the required program hours in the major (program) from Point Loma Nazarene University with a minimum grade of "C" in each course and an overall 2.00 grade point average.

INCOMPLETES AND LATE ASSIGNMENTS

Assignments not turned in by the day and time they are due will immediately lose 50% of possible points. *Please be do NOT wait until last minute to submit assignments!* Technology difficulties are not an acceptable excuse for late work.

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination on its scheduled day. No requests for early examinations or alternative days will be approved. In the case of this course, that means submitting your final take-home exam by 11:59 pm on Friday, December 18th.

COMMUNICATION

Canvas announcements and email will be the main forms of communication used by the professor outside of class. Students are expected to check their @pointloma.edu email at least daily. Please ensure that your Canvas course settings are customized for you to receive course announcements as an email. Any information I communicate via email, I will expect you to know.

SPIRITUAL CARE

PLNU Liberty Station Campus:

PLNU strives to be a place where you grow as whole persons. To this end we provide resources for our graduate students to encounter God and grow in their Christian faith. At the Liberty Station campus we have an onsite chaplain, Rev. Wil Ryland who is available during class break times across the week. If

you have questions, desire to meet with Rev Ryland or prayer requests you can contact him directly at gradchaplainlibertystation@pointloma.edu. In addition there are resources for your Christian faith journey available at <http://www.pointloma.edu/experience/faith/graduate-student-spiritual-life>

PLNU COPYRIGHT POLICY

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PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See Academic Policies in the Graduate and Professional Studies Catalog for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

If you have a diagnosed disability, please contact the Center for Student Success (CSS) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619.563.2810. You may also ask your academic advisor or program director for any additional accommodation information.

PLNU ATTENDANCE AND PARTICIPATION POLICY

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 can file a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See Academic Policies in the Graduate and Professional Studies Catalog for additional detail.

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