

POINT LOMA NAZARENE UNIVERSITY

Department of Kinesiology

KIN430 Clinical Exercise Physiology (3 Units)

Spring 2018

Instructor: Brandon J. Sawyer, PhD, Associate Professor of Kinesiology and Biology

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Time: M, W, F 11:00 to 11:55 am

Dates: January 9th to May 4th

Location: Kinesiology 3 and Rohr Science 112

Final Exam: Friday May 4th from 1:30 to 4:00 pm

Dr. Sawyer's Office Hours: M,W: 9am – 11am and 2:45-4pm
F: 9am – 11am

If you have any questions about the material in this course, feel free to stop by during my office hours as listed above. Either set up an appointment or simply drop by. I will also be in my office at other, unscheduled times. If my office hours don't work for your schedule, e-mail or stop by and we can set up an appointment to meet.

****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.***

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.

I. Catalog Description

Detailed analysis of the effects of exercise on the organ systems of the body. Lecture and laboratory experiences relating to apparently healthy populations as well as those with obesity, diabetes, and metabolic syndrome. Special fee.

- i. Prerequisite(s): KIN 340

II. Student Learning Outcomes

After completion of this course students will be able to:

1. Demonstrate a working knowledge of Maximal oxygen uptake and its determinants
2. Demonstrate a working knowledge of the health implications of maximal oxygen uptake
3. Demonstrate a working knowledge of the normal physiology, pathophysiology, and the effects of exercise on the following organ systems/diseases
 - a. Cardiovascular
 - b. Glucose control (Type 2 diabetes)
 - c. Immune system
 - d. Central nervous system
 - i. Cognitive function, depression, anxiety, Alzheimer's disease
 - e. Skeletal system (osteoporosis)
 - f. Muscular system (sarcopenia)
 - g. Adipose tissue (obesity)
 - h. Cancer
 - i. Gastrointestinal system
4. Critically analyze peer-reviewed journal articles in the field of exercise physiology.
5. Locate, analyze, apply, and synthesize information gathered from scientific journal articles in the field of health and exercise.
6. Write a basic scientific research article including introduction, methods, results, and discussion based on a single subject experiment conducted over the semester.

III. Course Materials

- a. Assigned readings will be posted to canvas
- b. There is no required textbook to purchase

IV. Educational Opportunities

- a. **Readings:** Articles and other readings will be posted to canvas throughout the semester for readings each week.
- b. **Lecture/Discussion:** This time will be spent giving background information on the topics at hand and exploring the physiology of the processes being discussed lecture notes will be posted on canvas.
- c. **Laboratory:** A portion of the class will involve conducting testing on the students in the class. This will be an opportunity for students to see, experience personally, and conduct some of the clinical exercise physiology laboratory testing procedures.
- d. **Exams:** There will be two section exams and a final exam over the course of the semester in order to check student understanding and learning.

- e. **Article summaries:** Students will write brief article summaries of the original research articles assigned in class. Students will then work in class with a partner to discuss the article and write a group summary of the article then the groups will present their main points from the articles to the rest of the class.
- f. **Attendance:** You are required to attend all class and laboratory sessions. You will receive 1 point for attending class and arriving on time each day for a total of 40 points throughout the semester (~6.5% of your grade).
- g. **Final Project:** You will be conducting a 4-week exercise intervention on yourself in order to elicit a change in 1 or more markers of health measured in the exercise physiology laboratory. You will be writing a scientific journal article formatted style paper related to your intervention. The paper will be written in sections over the course of the semester with feedback given on each section. The final exam date will be used for presentation of your project and turning in of your complete paper.

V. Course Grading

| Item | Number | Total Points |
|----------------------------|----------------|--------------|
| 1. Exams | 2 @ 100 points | 200 |
| 2. Final Project | 1 @ 150 points | 150 |
| 3. Article Summaries | 5 @ 15 points | 75 |
| 4. Purpose and Hypothesis | 1 @ 5 points | 5 |
| 5. Methods | 1 @ 25 points | 25 |
| 6. Annotated Bib and Intro | 1 @ 50 points | 50 |
| 7. Results | 1 @ 25 points | 25 |
| 8. Discussion | 1 @ 50 points | 50 |
| 9. On Time Attendance | 40 @ 1 points | 40 |
| Total | | 620 |

| <u>Grade</u> | <u>Percentage Points</u> |
|--------------|--------------------------|
| A | 94-100 |
| A- | 90-93 |
| B+ | 88-89 |
| B | 84-87 |
| B- | 80-83 |
| C+ | 78-79 |
| C | 74-77 |
| C- | 70-73 |
| D+ | 68-69 |
| D | 64-67 |
| D- | 60-63 |
| 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 and students missing more than 6 classes will be de-enrolled from the class.

2. Late Work:

Assignments not turned in by the **day and time** they are due will immediately be docked 20% (this includes assignments turned in minutes after the 11:59pm deadline). If the assignment is one week late then 40% deduction, two weeks late or more the grade will be docked 60%. Late quizzes 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. Academic Honesty:

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](#) for definitions of kinds of academic dishonesty and for further policy information.

5. PLNU Copyright Policy

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

6. Laptop Computers:

I recognize that portable computers may be the preferred method for students to take notes in this class and I support those students who choose this method. Computers, however, can become a distraction as they also can enable activities other than note-taking. These activities are not only a distraction to you, but they are also a distraction to the students around you. If you are found using your computer during class for anything not related to class you will lose your privilege to use your computer during class.

7. PLNU Academic Accommodation Policy:

If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for

accommodation by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See [Disability Resource Center](#) for additional information.

8. PLNU Attendance 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 Undergraduate Academic Catalog.

9. Communication:

Email will be the main form of communication used by the professor outside of class. Students are expected to check their @pointloma.edu email at least on a daily basis. If you know of issues with your @pointloma.edu account please notify the professor immediately. Any information I communicate via email I will expect you to know.

10. 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.

11. Final Examination Policy

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.

VII. Tentative Course Schedule

| Date | Topic/Assignment Due | Assignments Due |
|------------|--|---------------------------------------|
| Jan 9 (T) | Introduction, Overview, Explanation of Final Project | |
| Jan 10 (W) | Article Summary in class | Article Summary #1 |
| Jan 12 (F) | Discuss final project ideas, students present their purposes and hypotheses to class | Final Project: Purpose and Hypothesis |
| Jan 15 (M) | No School: Martin Luther King Day | |
| Jan 17 (W) | Pre-Testing | |
| Jan 19 (F) | Pre-Testing | |

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|-------------------|---|---|
| Jan 22 (M) | Determinants of $\text{VO}_{2\text{max}}$ | |
| Jan 24 (W) | Determinants of $\text{VO}_{2\text{max}}$ | |
| Jan 26 (F) | Changes in $\text{VO}_{2\text{max}}$ | Article Summary #2 |
| Jan 29 (M) | Cardiovascular Physiology | Final Project: Methods Begin Exercise Intervention |
| Jan 31 (W) | Cardiovascular Physiology | |
| Feb 2 (F) | Cardiovascular Pathophysiology | |
| Feb 5 (M) | Effects of Exercise on Cardiac Function | Article Summary #3 |
| Feb 7 (W) | Effects of Exercise on Blood Pressure | |
| Feb 9 (F) | Effects of Exercise on Vascular Health | |
| Feb 12 (M) | Effects of Exercise on Blood Lipids | |
| Feb 14 (W) | Effects of Exercise on Blood Lipids | |
| Feb 16 (F) | Exam #1 | |
| Feb 19 (M) | Pathophysiology of Type 2 Diabetes | |
| Feb 21 (W) | Effects of Exercise on Type 2 Diabetes | |
| Feb 23 (F) | Effects of Exercise on Type 2 Diabetes | Exercise Intervention Ends |
| Feb 26 (M) | Post Testing | |
| Feb 28 (W) | Post Testing | |
| Mar 2 (F) | Students Present Introductions in Class | Final Project: Annotated Bib and Intro |
| Mar 5-9 | No School: Spring Break | |
| Mar 12 (M) | Exercise Immunology | |
| Mar 14 (W) | Exercise Immunology | |
| Mar 16 (F) | Exercise Immunology | Article Summary #4 |
| Mar 19 (M) | Exercise and the Brain | |
| Mar 21 (W) | Exercise and the Brain | |
| Mar 23 (F) | Exercise and the Brain | Article Summary #5 |
| Mar 26 (M) | Exercise and Bone Health | |
| Mar 28 (W) | Exercise and Bone Health | |
| Mar 30 (F) | No School Easter Break | |
| Apr 2 (M) | No School Easter Break | |
| Apr 4 (W) | Exercise and Sarcopenia | |
| Apr 6 (F) | Exercise and Sarcopenia | |
| Apr 9 (M) | Exercise and Cancer | Final Project: Results |
| Apr 11 (W) | Exercise and Cancer | |
| Apr 13 (F) | Exercise and Digestive Health | |
| Apr 16 (M) | Exercise and Obesity | |
| Apr 18 (W) | Exercise and Obesity | |

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|-------------------|---|--|
| Apr 20 (F) | Exercise and Obesity | Final Project: Discussion |
| Apr 23 (M) | Exercise and Obesity | |
| Apr 25 (W) | Exercise and Obesity | |
| Apr 27 (F) | Exam #2 | |
| May 4 | Final Presentations 10:30am—1:00pm | Complete Final Project Paper and PowerPoint |