
Kinesiology Department

KIN 6036 Clinical Exercise Testing & Interpretation

3 Units

Spring 2024 Quad 1

Meeting days: Wednesdays 01/10-02/28

Meeting times: 5:30 – 8:00pm

Phone: TBA

Meeting location: Balboa RM156 & HPL **E-mail:** ksnyman@pointloma.edu

Office location and hours: KIN Office #106 or zoom

Final Exam: due online open from 02/25 – 02/28 (4 hour exam window)

Office hours Balboa: W: 3:30 – 4:30pm; F: 10 – 2:00 pm & by appointment via zoom on M & evenings on F

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 covers a broad range of skills and information important in exercise testing and interpretation for both clinical and preventative health applications. The lecture and online content will provide practical information regarding clinical conditions and applications to health prevention and promotion encountered during exercise testing.

The laboratory sessions are designed to develop specific and practical competencies in exercise testing skills. Skill development will include the use of muscular function & strength assessment, pulmonary assessment, CPET & metabolic assessment, electrocardiography (ECG), and body composition. This class prepares students to sit for the ACSM Clinical Exercise Physiologist Certification Examination (if appropriate clinical hours are accumulated).

COURSE LEARNING OUTCOMES & Schedule

1. **Health Screening & Risk Stratification (week 1)**
 1. Complete CITI TRAINING by Friday (or submit certificate)
 2. Learn to appropriately administer a: Informed consent, health history questionnaire, PAR-Q, and ACSM Risk stratification. Use all data and complete a formal write-up appraisal of a client.
 3. Learn and apply ACSM Fitness & Health Standards and health outcomes
2. **Cardiopulmonary metabolic assessment (CPET) Lab Maximal & Submaximal (week 2 & 3)**
 1. Identify key physiology for cardiovascular diseases & associated exercise risks
 2. Critically apply health risk to identify appropriate CPET testing modality
 3. Learn how to apply oxygen consumption reserve (VO_{2R}) during training and exercise assessment.
 4. Lab: Administration of submaximal CPET tests (With metabolic cart), Blood pressure, HRT,

Week 3:

1. Lab: Independently calibrate and administer maximal CPET testing with BP. Exercise protocol: ACSM predicted ramp
3. **Electrocardiogram (Week 4)**
 1. learn the basics of ECG placement and measurement theory
 2. Learn how to apply heart rate reserve, maximal, and resting HR principles during training and exercise assessment

Lab: Administration of resting and exercise ECG. Interpretation of ECG (normal and pathological). Exercise: Bruce protocol treadmill step

4. **Pulmonary (Week 5)**
 1. identify key physiology for pulmonary diseases & associated exercise risks
 2. Critically appraise flow volume loop data and lung volumes
 3. Lab: practice administering and participating in pulmonary testing followed by interpretation
5. **Muscle Strength & Power (Week 6)**
 1. Identify key physiology associated with musculoskeletal diseases & conditions as well as associated exercise risks.

2. Lab: Independently administer anaerobic power, muscular strength & endurance assessments. Students will also participate in this testing
6. **Muscle Activation (Week 7)**
 1. Review Electromyography principles & placement considerations
 2. Complete EMG lab and interpretation activities during submaximal to maximal strength assessment
7. **Fitness Prescription (Week 8)**
 1. Students will apply and present a case study using the CPET and Muscular assessment test data into applicable exercise prescriptions using critical training principles and ACSM recommendations for aerobic and resistance training programming. 15- 20 minute individual presentations.
 2. Lab: Canvas take home due Friday: Calculation scenarios: complete appropriate ACSM calculations to determine appropriate: exercise intensity (speed, resistance, % grade), weight loss goals, kcal burn during running or cycling exercise.

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 and textbook reading excerpts will be posted on Canvas for each week.
2. **Lecture Videos/ Slide Decks:** Week 2 – 8 will include lecture videos / Detailed Slide Decks to view prior to coming to class. A canvas quiz associated with the videos will be administered within the first 20 minutes of class during those applicable weeks.
3. **Lecture/discussion:** Most classes will be heavily focused on hands-on laboratory activities. Class meetings will begin with a short learning assessment quiz based on posted video materials, lab activities, followed by a short re-cap lecture & discussion of how to apply/interpret data collected during the lab activities.
4. **Quizzes:** Class meetings will begin with a short learning assessment quiz based on posted video materials. Quiz questions will be T/F, M/C and must be completed via canvas within class. (6 total)
5. **Laboratory:** A significant portion of class will focus on hands-on laboratory activities. Students must dress prepared to both administer and be a participant for all exercise testing. Everyone will have a chance to participate in both roles. Closed toed shoes and appropriate exercise attire required. There are 7 lab reports.
6. **Lab reports:** There will be lab reports associated with Week 1 – 8 activities. All reports are due the following week (Wednesday) by the start of class time with the exception of the final calculation scenario lab (Week 8). Lab reports can be completed with a partner but both partners must contribute equally and names of collaborating partners must be included on all submitted materials (each person must submit their own report).

7. **Exams:** There will be three examinations in the class. Each exam will be a mixture of multiple choice and short response questions. All exams will be administered on Canvas using honor lock. The exam window will be 3 hours in duration but should only take 60 – 90 minutes to complete.
8. **Individual presentation:** Week 8 will be a case study presentation day. Individual presentations. 15- 20 minutes each. + Class time to work on the final lab report (ACSM calculations).
9. **Clinical Synthesis:** Students will choose 1 pathological condition discussed (or not discussed) in class and complete a clinical synthesis table. The table will include a minimum of 8 peer-reviewed articles that discuss the condition’s physiology, pathology, exercise considerations, and the effect of exercise on the condition (a single article does not have to have each of these topics). The synthesis report will be in written essay format using within-text APA citation formatting.

All examinations must be taken completely independently. Honor lock will be utilized but you are permitted to have a single 8x11” paper (double-sided) with notes during the exam period. A regular calculator (no graphing calculators) is permitted during all exams. All short response questions must be in your own words or, if using academic sources, have appropriate APA citation formatting. Any work in class that involves a calculation requires you to show all math for full credit. Work may be typed within the exam itself or handwritten and submitted using the “Exam _ Calculation Work” submission link.

DATE	LOCATION	CLASS CONTENT OR ASSIGNMENT	ASSIGNMENT DUE DATE
Week 1 1/10	RM156	Class: Introduction, Health Assessment & Risk Stratification	
Week 2 1/17	RM156 & HPL	Class: Cardiovascular Disease Pathology & Risk; Lab: CPET Metabolic cart overview, Submaximal testing	Pre-lecture materials quiz 1; Lab 1 report due
Week 3 1/24	RM156 & HPL	Class: CVD continued (if needed) Lab: CPET	Pre-lab materials quiz 2

Maximal GXT testing, BP
rest and exercise, resting
ECG

Exam 1 Due by 01/27 at 11:59pm PST Canvas (3 hr honor lock once opened)

Week 4	1/31	RM156 & HPL	Electrocardiogram principles, testing, & interpretation (normal and pathological) Lab: ECG Bruce protocol (no metabolic cart) & pathological ECG for interpretation	Pre-lecture materials quiz 3; Lab 2 report due
Week 5	02/07	RM156 & HPL	Pulmonary Pathology & Interpretation. Lab: Pulmonary flow volume & capacity testing and interpretation	Pre-lecture materials quiz 4; Lab 3 report due

Exam 2 Due 02/10 at 11:59pm PST Canvas (3 hr honor lock once opened)

Week 6	02/14	RM156 & HPL	Muscular Strength & Power Assessment & Interpretation Lab: submaximal & maximal strength assessment	Pre-lecture materials quiz 5; Lab 4 report due
Week 7	02/21	RM156 & HPL	Muscle Activation Lab: Submaximal and maximal + interpretation	Pre-lecture materials quiz 6; Lab 5 report due

Week 8	02/28	RM156	Final Presentation- Clinical Case Study (20 minutes each)	Clinical synthesis report due
			Final ExRX lab due 03/01 at 11:59pm PST	; final lab report due 03/01

No Final Exam

REQUIRED MATERIALS AND RECOMMENDED STUDY RESOURCES

Required:

Top of Form

Bottom of Form

[ACSM's Guidelines for Exercise Testing and Prescription - With ACSM](#)

Guidelines By American College Of Sports Medicine Staff; **Edition** : 10TH
18; Publisher : LIPP/W+W; **ISBN 13** : 9781496391308

Additional required materials will be provided via canvas PPT decks, videos, and articles

Recommended:

1. Exercise Testing and Interpretation. *Cooper. First Edition, CMB. ISBN 13: 9780521648424*
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. Honor Lock Exams	3 @ 100 points each	300	37.5%

2. Pre-lecture Quizzes	6 @ 10 points	60	~7.5%
3. Lab Write ups	7 @ 25 points each	175	~22%
4. Individual Presentation	1 @ 75 points each	75	~9%
5. Clinical Synthesis Report	1 @ 100 points	100	~12.5%
6. Lab participation	6 @ 15 points	90	~11%

Total 800 100%

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. No late work accepted 24hr+ due date. No late exams accepted.

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, March 1st at 11:59pm PST.

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 Balboa 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 Balboa campus we have an onsite chaplain, Rev. Kevin Portillo who is available during class break times across the week. If you have questions, desire to meet with Rev. Portillo or prayer requests you can contact him directly at KevinPortillo@pointloma.edu.

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 ARTIFICIAL INTELLIGENCE POLICY

Use of Artificial Intelligence (AI) tools (e.g, ChatGPT, iA Writer, Marmot, Botowski) is not permitted, and use of these tools will be treated as plagiarism.

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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