 PLNU Logo Clear.png	Department of Kinesiology KIN 6005 - Research Methods Number of Units: 3
Fall 2020	

Meeting days: Asynchronous + Synced Meetings	Instructor: <u>Arnel Aguinaldo, PhD, ATC ("Dr. A")</u>
Meeting times: Asynchronous + Synced Meetings	Phone: 619-849-3007
Meeting location: Online	Email: aaguinal@pointloma.edu
Final Exam: <u>Take-Home Final Exam</u> (Due 12/17/2020)	<u>Virtual Office Hours</u>
TA: <u>Madison Harding</u>	

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 introduction to analyzing data and designing research experiments in exercise and sport science. Topics will include: 1) selected techniques and designs used in research, with special emphasis given to planning, conducting, and reporting of research; and 2) applied statistical analysis and interpretation of data from the field of exercise and sport science.

COURSE AIM

This course will provide you with basic knowledge of descriptive and inferential statistics prior to enrolling in KIN 610: Evidence Based Practice and Decision Making in Kinesiology. Course meetings will consist of live meetings, online modules, and laboratory sessions for which you will collect, analyze, and interpret data as well as submit a scientific report on the results. You will also be required to conduct a pilot research project and present the findings in an oral format as part of a research proposal process. Specific attention will be given to Master's thesis or capstone project research and writing as you begin to identify and write your thesis/project.

Note: KIN 6005, 6010 and 6050 are meant to be taken in sequence. KIN 6005 emphasizes basic theory and understanding of research methodology and statistical analyses; KIN 6010 integrates the application of evidence with clinical decision making; and KIN 6050 provides the opportunity for additional insight and understanding through seminar-style discussion, directed readings (KIN 6060), and practical experience related to Exercise Science.

INSTITUTIONAL LEARNING OUTCOMES (ILO)

- Learning, Informed by our Faith in Christ**
Students will acquire knowledge of human cultures and the physical and natural world while developing skills and habits of the mind that foster lifelong learning.
- Growing, In a Christ-Centered Faith Community**
Students will develop a deeper and more informed understanding of others as they negotiate complex professional, environmental and social contexts.
- Serving, In a Context of Christian Faith**
Students will serve locally and/or globally in vocational and social settings.

PROGRAM LEARNING OUTCOMES (PLO)

The Point Loma Nazarene University MS-KIN graduate will be able to:

- Appraise current research data in Kinesiology and integrate it into professional practice to solve relevant problems and make effective decisions.
- Work independently and with a team to persuasively communicate essential information in their discipline.
- Demonstrate appropriate breadth of knowledge of the background and principle research in their specialization in order to conduct an independent research project.
- Serve various populations, integrating compassionate care and the Christian faith with their professional practice.
- Pursue an active and growing involvement in their discipline by achieving advanced certification and/or membership in a related professional organization.

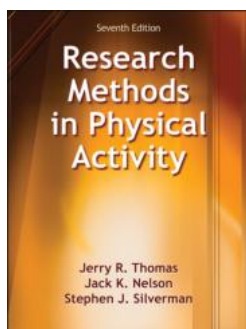
COURSE LEARNING OUTCOMES (CLO)

At the end of this course, students should be able to:

- Explain the value and importance of developing research ideas, conducting research and employing the scientific method within Kinesiology to solve relevant problems.
- Explain the general principles of research design for experimental and non-experimental research, including literature review, sampling procedures, selection of subjects, ethical treatment of subjects, data collection, and IRB standards.
- Understand basic measurement constructs such as validity, reliability, scales of measurement, field tests, and laboratory tests

4. Employ statistical analysis for the purpose of exploratory data analysis and hypothesis testing, including t-tests, ANOVAs with post hoc tests, factorial ANOVAs, correlation and regression, power analysis, and selected clinical measures of association.
5. Utilize procedures in R and interpret output for all statistical procedures.
6. Understand and apply qualitative analysis designs in kinesiology research.
7. Develop and present a thesis or capstone project proposal according to committee guidelines and including appropriate formatting (i.e., either journal manuscript or thesis as approved by academic advisor).

REQUIRED RESOURCES

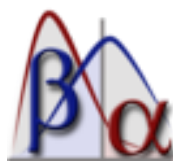


Thomas, J.R., Nelson, J.K., & Silverman, S. (2015). *Research methods in physical activity* (7th ed.). Champaign, IL: Human Kinetics. [Purchase eBook here](#).



We will be using R for all statistical analyses that will be performed in this course (beginning with Module 5). You will need two pieces of freely available software to download and install on your computer (Windows or Mac):

- **R**
R is a powerful language and environment for statistical computing and graphics, which provides a wide variety of statistical and graphical techniques.
Download [R here](#).
- **RStudio**
RStudio is a set of integrated tools designed to help you be more productive with R.
Download [RStudio Desktop for Windows or Mac here](#).



G*Power (free)

G*Power is a tool to compute statistical power analyses for many different t tests, F tests, χ^2 tests, z tests and some exact tests. G*Power can also be used to compute effect sizes and to display graphically the results of power analyses.

Download [G*Power for Windows or Mac here](#).

This course also utilizes the following online tools (free of charge for students) to facilitate student engagement and enhance your learning experience:

- **Zoom** - Zoom video conferencing will be used for synced meetings and virtual office hours
- **PlayPosit** - [PlayPosit](#) will be used for in-video quizzes and interactive video lectures/tutorials

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. All supplemental materials posted on this course site (including articles, book excerpts, or other documents) are provided for your personal academic use. These materials may be protected by copyright law and should not be duplicated or distributed without permission of the copyright owner.

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 15 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

Category	Time Expectation in Hours
Online Participation in Discussions, Groups, etc.	20
Reading Assignments	25
Written Assignments	20
Other Assignments & Learning Activities	24
Quizzes, Surveys	24
Total Hours	113

ASSESSMENT AND GRADING

Course Requirements: Assessment of Course Learning Outcomes

- I. **Participation (10%):** Assesses Course Learning Outcomes #1, #2, #4, #6
We have supplemented the course text and lecture materials with current evidence-based medical literature. It is expected that course material will be read **beforehand** so that informed and lively discussion may be the primary focus of live class meetings and online discussions. After certain readings, you will respond to questions or prompts on the Live Webinar Agenda or Discussion Board on Canvas the Thursday of the module in which the discussion is assigned followed by at least two replies to your peers by Sunday. At other times, you will be asked to summarize the key points of outside readings by outlining the major points of the article prior to class. Additionally, you are expected to participate in the **Meet & Greet** discussion in Week 1 (worth 5 points).
- II. **Syllabus and In-video quizzes (10%):** Assesses Course Learning Outcomes #2-4
The first quiz of the course is a simple **syllabus quiz**. In order to assess your preparation in course modules, you will complete in-video quizzes (PlayPosit "bulbs") to gauge your preparation for discussions. These will also allow the professor to ascertain "sticking points" for students so that class time can be spent in clarifying key concepts.
- III. **Protecting Human Research Participants Certification (2%):** Assesses Course Learning Outcome #2
All investigators engaging in clinical research where human participants are involved must undergo human subjects research training. This training, administered by the Collaborative Institutional Training Initiative (CITI), covers the ethical issues involving human participants in research. You will need to submit your certificate of completion by week 4, which is worth 10 points. You cannot participate in any of the course's assignments involving data collection and analysis (described in IV-VI below) without this certificate.
- IV. **Assignments (10%):** Assesses Course Learning Outcomes #3, #4, and #5
Utilizing Excel and/or RStudio statistical software, you will complete four statistical analyses. All output write ups need to be completed in APA format and submitted via Canvas before class on the due date (see course schedule).
- V. **Proposal presentation (20%):** Assesses Course Learning Outcome #5
During the last week of classes, you will be expected to present your thesis/capstone project topic in a formal proposal environment. This session is open to all faculty and your classmates. Your grade for this presentation will be based on the quality of your presentation and mastery of the material, your ability to respond to content questions from the audience, and your overall professionalism.
- VI. **Proposal documents (20%):** Assesses Course Learning Outcome #7
The culmination of your semester's work will be a completed proposal document to be submitted via Canvas. This document will be graded based on quality of content, the degree to which you have addressed all the major aspects of your thesis/project topic, and your ability to meet department guidelines for completed thesis/capstone project. Your proposal document should include the following items and will be due in parts at various dates throughout the semester:
- Research Question(s): You will identify your question of interest for the Proposal Project.
 - Literature Review
 - Proposed Methods and Data Analysis (student must meet with their advisor prior to submitting this document)
 - Rough Draft of Project Proposal with Introduction
 - Final Project Proposal (written)
- VII. **Mid-Term Examination (10%):** Assesses Course Learning Outcomes #1-3
A unit examination will be administered online on Canvas to formatively measure your mastery of key aspects of the course (i.e., experimental design and statistical analysis using RStudio) after Module 8 (see calendar for exact date).
- VII. **Final Exam (18%):** Assesses Course Learning Outcomes #1-4, #6
The final exam will be given at the end of the quad and will be summative over the course content covered in class with emphasis on material covered after the mid-term. This exam will be distributed via Canvas one week before the scheduled exam date to allow you adequate time to review the material and prepare your answers. You are free to work in groups or ask for help from the instructor. **However, the final written answers should be in your own words!**

Grading Points

Course Assignments	Points
Participation (Live Webinars and Discussions)	60
Syllabus and In-Video Quizzes	50
Human Subjects Protection Certification	10
Assignments	40
Mid-Term Examination	50
Proposal Presentation	100
Proposal Documents	100
Final Exam Assignment	90
Total Course Points: 500	

NOTE: It is your responsibility to maintain your class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), you have the responsibility to first contact the professor. Then if no accommodations can be made, you are responsible to follow through (provided the drop date meets the stated calendar deadline established by the university).

Grade Scale

A	461-500	B-	396-410	D+	331-345
A-	446-460	C+	381-395	D	311-330
B+	431-445	C	361-380	D-	296-310
B	411-430	C-	346-360	F	0-295

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

INCOMPLETE AND LATE ASSIGNMENTS

All assignments are to be submitted via Canvas by the due date and time listed in the calendar.

Late work (turned in any time after the due date and time) may be turned in until the last day of class, for a maximum of 50% credit (this is a still a failing grade but is better than zero points).

Missed exams may ONLY be made up with a legal, written excuse. A missed exam for an approved reason MUST be completed prior to the subsequent module.

COPYRIGHT POLICY

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ACADEMIC HONESTY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. As stated in the university catalog, "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. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for a) that particular assignment or examination, and/or b) the course." See [Academic Policies](#) for full text.

ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all **synchronous** class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions (virtual or face-to-face), the faculty member will issue a written warning of 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. In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies](#) in the Graduate and Professional Studies Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

Asynchronous Attendance/Participation Definition

A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

Students taking online courses are expected to attend each week of the course. Attendance is defined as participating in an academic activity within the online classroom which includes posting in a graded activity in the course. (Note: Logging into the course does not qualify as participation and will not be counted as meeting the attendance requirement.)

Students who do not attend at least once in any 3 consecutive days will be issued an attendance warning. Students who do not attend at least once in any 7 consecutive days will be dropped from the course retroactive to the last date of recorded attendance.

Students who anticipate being absent for an entire week of a course should contact the instructor in advance for approval and make arrangements to complete the required coursework and/or alternative assignments assigned at the discretion of the instructor.

ACADEMIC STANDING

Graduate students at Point Loma must obtain a 3.0 GPA to remain in **good standing** in the MS Kinesiology program. Additionally, all graduate students need to earn a C or higher in all graduate courses according to the catalog grading policy.

ACADEMIC ACCOMMODATIONS

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations or adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in Rm. 312C at the Mission Valley Regional Center via DRC@pointloma.edu or 619.849.2533. The DRC's policies and procedures for assisting such students in the development of an appropriate Accommodation Plan (AP) allows PLNU to comply with Section 504/508 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required and official disability documentation, the DRC will contact the student within 15 business days to schedule an AP meeting. During the AP meeting an Accommodation Plan will be established to meet the student's specific disability-related needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each quad/semester. The AP must be implemented in all such courses by faculty. All questions should be directed to the DRC for clarification.

SPIRITUAL CARE

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 on the [Graduate Student Life](#) webpage.

DIVERSITY AND INCLUSION STATEMENT

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: disability, age, socioeconomic status, ethnicity, race, nationality, religion, gender, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups. To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official PLNU records, please let me know!

- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.
- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

FINAL EXAMINATION POLICY

Successful completion of this class requires submitting the completed final examination **on its scheduled day**.

INFORMATION LITERACY

The curriculum of the MS-KIN is designed so that you develop skills in scientific writing, performing statistical analysis of data, reading and critically appraising primary literature, and incorporating current best evidence into your professional practice. Not all information is equally sound or applicable to your practice. Various assignments within this course are designed to accomplish the goal of informational literacy—to evaluate the validity and importance of information obtained from any source and use the information appropriately to solve relevant problems. These assignments include: RStudio Output Reports, in-class article discussions, in-class discussion of experimental design, review of the literature related to your proposal, presentation of proposal. We will regularly direct you to the Ryan Library to accomplish these assignments

USE OF TECHNOLOGY

In order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the **Technology and System Requirements** information. Additionally, students are required to have headphone speakers compatible with their computer available to use. If a student is in need of technological resources please contact **student-tech-request@pointloma.edu**.

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

ASSIGNMENTS AT-A-GLANCE

The table below lists our assignments and their due dates. Click on any assignment to review it.