



Psychology Department

PSY 3090-3 Research Methods and Statistics I

4 units

Fall 2025

INFORMATION	SPECIFICS FOR THE COURSE
Instructor title and name:	Ashley Leung, Ph.D.
Meeting time and location:	MWF 8:30-9:35 am; Ryan Learning 103 (MW), Ryan Library 220 (F)
Contact:	aleung@pointloma.edu
Office location and hours:	Culbertson 206; MWF 10:30am to 12pm Or by appointment: https://calendar.app.google/fLA6JPegTZZTxhGv9

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

Students gain experience in methods of design, data collection, management, and analysis. Students begin a significant research project.

You may know psychology as the study of people, so why use statistics? Why not take behavioral experiments and surveys at face value? If we are to take ourselves seriously as scientists, we must have some basis for any and all claims we make from data. We know that people differ from each other, and unless we have a way to collect data from entire populations, we must make *inferences*. Statistical methods, including those you will learn in this course, allow us to gain insight and draw conclusions based on empirical data. There is math involved, but the math is a very small part of it—What is important is that you learn *how* to describe and understand data, and *when* to utilize different statistical methods to make inferences.

Course Learning Outcomes

By the end of this course, you will be able to:

- Apply the scientific method to studies of human behavior and mind
- Distinguish between different statistical methods, such as t-tests, ANOVAs, correlations, and regressions
- Identify the correct tests to use for different data sets
- Analyze data using SPSS and correctly interpret the results
- Describe biases that arise in research, and identify possible solutions to reduce bias
- Read and interpret graphs and identify best graphs for effective communication of specific data

Required Texts and Recommended Study Resources

Diez, D., Cetinkaya-Rundel, M., & Barr, C. (2019). *OpenIntro Statistics*. (Fourth Edition ed.) OpenIntro, Inc. <https://www.openintro.org/book/os/>

This is an Open Access (i.e. free!) textbook: OpenIntro Statistics, Edition 4. You can get your copy at this link: <https://leanpub.com/os>. The free version is a PDF, but you are welcome to pay for a paper copy (it is still very affordable for a textbook). We will be using the textbook for readings and some assignments, and the practice questions will serve as a helpful resource for studying and checking your understanding.

Students are responsible for having the required course textbooks prior to the first day of class.

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.

Assessment and Grading

Grades will be based on the following:

Research project: 10%

- Topic proposal: 5%
- Data collection plan: 5%

Homework/ Labs: 30%

Quizzes: 10% each, 40% total

Final exam: 20%

Grade Scale Based on Percentages

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

Assignments and Assessments At-A-Glance

Research Project

The Statistics and Research Methods sequence culminates in a group research project, which you will design, conduct data collection for, analyze, and present. Most of project will be completed in the spring, but you will begin thinking about it and designing it in the fall. The two components you will submit this semester are:

Topic proposal

You will submit a short (one-page) proposal of your topic. You should include your inspiration / motivation for conducting research on that topic: What makes it interesting? What makes it important? Cite relevant previous work in APA format, and consider how your proposed study will add to the field. Are you conducting a replication? Are you extending previous work? Are you using a new method to study a question that others have researched in the past? You will submit your proposal as a group, and all group members will receive the same score for this assignment.

Data collection plan

Your group will also submit a brief (one-page) data collection plan. How will you recruit participants? What will your participants do (respond to a survey, complete an activity, etc.)? Construct your data

collection plan based on past research in the area, and any feedback you received on your topic proposal. Remember to give some reasoning for why you are choosing your data collection method. Each group will submit one data collection plan, and all group members will receive the same score.

Homework

Homework assignments provide opportunities for you to check your understanding and showcase what you've learned. Importantly, homework questions will be similar to quiz and exam questions, so they can serve as good practice! Please note that you should be completing your homework *individually*.

SPSS Labs

As part of this class, we will be learning to complete data analysis using a statistical software, SPSS. You will learn how to input and read in data, how to navigate to different tests, and how to interpret output tables. Each Friday, we will meet in the computer lab (Ryan Library 220). Library computers will have SPSS installed on them, and I will provide sufficient time during SPSS classes for you to complete your labs. If you need extra time to complete them, you may utilize a library computer, or choose to purchase an SPSS license for your personal machine.

Quizzes

One learning objective of this class is that you will be familiar with different types of data and statistical tests. You will also be able to define, interpret, and calculate measures such as standard deviation, confidence intervals, etc. As such, quizzes are administered throughout the semester to test your knowledge. Your performance allows me to assess how well information is being retained. More importantly, quizzes allow you to reflect on how well you are learning and digesting the contents of this course. Retrieving information from memory has been shown to improve retention of information in the long term, and I hope my quizzes (and your process of studying for them!) will help make key concepts of this course part of your long-term memory.

Final Exam

To assess your overall learning and your ability to synthesize and apply what you learned in the classroom, there will be a final exam. The format and question types in the final will be similar to those of quizzes, and the final is cumulative (i.e., any topic covered during our course may appear).

Course Schedule

Week (Dates) *greyed out = no class	Topic	Reading	Assignment / Assessment
Week 1 (9/1, 9/3, 9/5)	Welcome / Introduction		

Week 2 (9/8, 9/10, 9/12)	Collecting data & identifying variables		
Week 3 (9/15, 9/17, 9/19)	Responsible research practices		Quiz 1: 9/19
Week 4 (9/22, 9/24, 9/26)	Measures of central tendency		HW 1: 9/26
Week 5 (9/29, 10/1, 10/3)	Probability		
Week 6 (10/6, 10/8, 10/10)	Descriptive statistics		Quiz 2: 10/10
Week 7 (10/13, 10/15, 10/17)	Distributions		HW 2: 10/17
Week 8 (10/20, 10/22, 10/24)	Null hypothesis testing & confidence intervals		Research topic proposal due 10/22
Week 9 (10/27, 10/29, 10/31)	T-tests: one-sample, two-sample, and paired		Quiz 3: 10/31
Week 10 (11/3, 11/5, 11/7)	ANOVA		SPSS 1: 11/7
Week 11 (11/10, 11/12, 11/14)	Factorial ANOVA		
Week 12 (11/17, 11/19, 11/21)	Chi-Square		Quiz 4: 11/21
Week 13 (11/24, 11/26, 11/28)	Review / Catch up		Data collection plan due 11/24
Week 14 (12/1, 12/3, 12/5)	Regression		SPSS 2: 12/5
Week 15 (12/8, 12/10, 12/12)	Projects / Wrap up		Final Exam: 12/15 7:30-10:00 am

Lomabooks Instructions for Students:

*This course is part of our course material delivery program, **LomaBooks**. The bookstore will provide each student with a convenient package containing all required physical materials; all digitally delivered materials will be integrated into Canvas.*

You should have received an email from the bookstore confirming the list of materials that will be provided for each of your courses and asking you to select how you would like to receive any printed components (in-store pick up or home delivery). If you have not done so already, please confirm your fulfillment preference so the bookstore can prepare your materials.

For more information about **LomaBooks**, please go: [HERE](#)

Final Examination Policy

Successful completion of this class requires taking the final examination on its scheduled day: **Monday 12/15 at 7:30am**. The final examination schedule is posted on the [Traditional Undergraduate Records: Final Exam Schedules](#) site. If you find yourself scheduled for three (3) or more final examinations on the same day, you are authorized to contact each professor to arrange a different time for one of those exams. However, unless you have three (3) or more exams on the same day, no requests for alternative final examinations will be granted.

Late Assignments and Absences

All assignments are to be submitted/turned in by the deadlines stated on the syllabus and in Canvas. Most of the time, that would be by end of day (11:59pm) of the deadline. Incompletes will only be assigned in extremely unusual circumstances. Late assignments will receive the following reductions: 10% reduction per day late (e.g., a 100% score would become 90% if submitted one day late, 80% if two days late, and so on). After 3 days, assignments will no longer be accepted, and you will receive a 0 on that assignment.

PLNU has an attendance policy: a minimum of 80% attendance is required to pass a course. If you will not be able that proportion of classes, I encourage you to find a different section or take this course later. If you must be absent, please notify me as soon as possible. Absences on are permitted when:

- a. You are severely ill, or have a contagious respiratory illness
- b. There is a medical emergency / death in your immediate family
- c. You are travelling on university-approved travel (sports team, conferences, etc.). A note from the coach / professor / staff member in charge must be sent to me *at least* 2 weeks ahead of time

Absences that do not fall under the listed categories will be considered on a case-by-case basis.

Quizzes are taken at the beginning of class. If you miss class on a quiz day, you will receive a 0, unless you have an excused absence. If you are late to class, you will not receive extra time.

Spiritual Care

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, a desire to meet with the chaplain or have prayer requests you can contact your professor or the [Office of Spiritual Life and Formation](#).

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.

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.

PLNU Recording Notification

In order to enhance the learning experience, please be advised that this course may be recorded by the professor for educational purposes, and access to these recordings will be limited to enrolled students and authorized personnel.

Note that all recordings are subject to copyright protection. Any unauthorized distribution or publication of these recordings without written approval from the University (refer to the Dean) is strictly prohibited.

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. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

Artificial Intelligence (AI) Policy

The use of Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) is generally not recommended for this course. You are permitted to utilize AI for generating ideas/ brainstorming, but you are not allowed to use AI tools to generate content (e.g., text, code, images, video, etc.) that will end up in any work submitted to be graded for this course. If you have any doubts about using AI, please gain permission from the instructor. *Please state on your submission if you have used AI for ANY purpose during the completion of an assignment.*

PLNU Academic Accommodations Policy

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. The EAC makes accommodations available to professors at the student's request.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any special accommodations.

Language and Belonging

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive,

and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

If you (or someone you know) have experienced a bias incident regarding language, you can find more information on reporting and resources at www.pointloma.edu/bias.

Sexual Misconduct and Discrimination

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at counselingservices@pointloma.edu or find a list of campus pastors at pointloma.edu/title-ix.

If you (or someone you know) have experienced other forms of discrimination or bias, you can find more information on reporting and resources at www.pointloma.edu/bias

PLNU Attendance and Participation Policy

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, 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 withdrawal date or, after that date, receive an “F” grade.

Use of Technology in the Classroom

Laptop use is not permitted during class. If there are specific reasons to use a laptop for some sessions, I will notify students ahead of time.

Note-taking on tablet devices are allowed **ONLY** if the tablet lays flat on the table and does not distract you or other students while in use. If I notice that tablet usage is distracting to anyone in the classroom, I reserve the right to request that students put away the tablet.

If you require accommodations for technology use, please reach out to me to discuss how we can best support you.

Loma Writing Center

The Loma Writing Center exists to help all members of the PLNU community cultivate transferable writing skills to engage their academic, professional, personal, and spiritual communities. We work toward this goal by conducting one-on-one consultation sessions, supporting writing education across the PLNU community, and participating in ongoing writing center research.

Getting feedback from the Loma Writing Center while you're in the process of working on an assignment is a great way to improve the quality of your writing and develop as a writer. You are encouraged to talk with a trained writing consultant about getting started on an assignment, organizing your ideas, finding and citing sources, revising, editing for grammar and polishing final drafts, and more. For information about how to make in-person or online appointments, see [Loma Writing Center webpage](#) or visit the Loma Writer Center on the first floor of the Ryan Library, room 221.

- Appointment Calendar: <https://plnu.mywconline.com/>
- Website: <https://www.pointloma.edu/centers-institutes/loma-writing-center>
- Email: writingcenter@pointloma.edu