POINT 1902 LOMA
NAZARENE UNIVERSITY

Spring 2020
PSY 3090: Research Methods and Design I
1:30-2:35pm
Evans 114 (M/W), Lib220 Bresee Lab (Fridays)

Instructor: Rosemond T. Lorona, Ph.D.
Office: Culbertson 214
Office Hours: M/W/F: 9-9:40am, M: 3-5pm, Th: 9:30-11am, 1-3pm (and by appointment)
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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

You're probably taking this course because you are majoring in psychology and enjoy learning about human thoughts, feelings, and behavior. But how, exactly, do psychologists get their ideas and information about humans? Well, the field of psychology is based on research and reoccurring patterns of data. Psychologists can interpret these data by utilizing statistics. Therefore, what we know about psychology is fundamentally tied to research and statistics! The abilities to understand statistics and make correct conclusions about research are critical for students and professionals in many fields. This course will introduce many commonly used statistics and designs for basic psychological research. The course will focus on the underlying theory and the interpretation of descriptive statistics, correlation, regression, t-tests, ANOVA, and nonparametric tests. An introductory hands-on experience with the computer statistical package **R** will also be included in the course. We will practice completing and interpreting **R** analyses in class and you will have opportunities to practice on your own. We will also discuss research validity and how to be a good consumer of scientific research. You will begin designing an original study, which will be completed in the following semester.

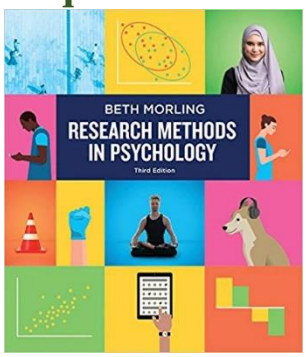
Course Goals/Learning Outcomes

- Distinguish between the uses and conclusions of correlation, regression, t-tests, ANOVA, and nonparametric tests and decide which type of test is appropriate for specific research questions and designs
- Remember and apply the use of null-hypothesis testing and its limitations
- Identify issues in statistics and research, such as bias, power, error, and ethics, and identify possible solutions to these issues
- Complete statistical analyses in R and correctly interpret and form conclusions based on the results of statistical analyses
- Design a psychological study or experiment that answers a research question of interest
- Communicate science accurately in written form
- Search for, obtain, and correctly interpret quality peer-reviewed research.

Unit Requirement

This is a 4-unit course delivered over 15 weeks. As such, we spend approximately 3.5 hours per week in class and it is expected that you spend approximately 8 hours each week outside of class reading, taking notes, viewing lectures, studying, completing assignments, and preparing for class. Dedicating adequate time to your learning will help you succeed and is especially important if you want an A in the course. Think of it as: hours spent → points earned. Specific details about how the class meets the credit hour requirement can be provided upon request.

Required Texts



Research Methods in Psychology: Evaluating a World of Information (3rd Ed) by Beth Morling
ISBN-13: 978-0393630206; ISBN-10: 039363020X

Learning Statistics with R, version 0.6. by Danielle Navarro. Download for free at https://learningstatisticswithr.com

Required Computer Software (free)

RStudio, version 1.2.1335 or higher
First, download R 3.6.1 (base program) on your personal laptop for free at https://www.r-project.org/ and then download RStudio for free at https://www.rstudio.com/
Alternatively, if you are unable to download the needed versions of these programs on your personal computer, it is expected you will use university computers

Assignments and Points

Learning Checks (11 @ 10 points each): There will be multiple choice, fill-in-the-blank, and/or short answer questions on each learning check that will be from readings and lectures. Seven questions will be on the current reading/material and 3 questions will be review from the prior week. There will be 13 learning checks and your two lowest scores will be dropped. Missed learning checks due to absence or tardiness (for any reason) cannot be made up and will be counted as a zero. It is your choice to use dropped learning checks for days that you are absent, tardy, and/or do not have time to adequately prepare. Questions that are submitted on Canvas by 11:59pm the day before a learning check will be answered in class prior to the learning check, as time allows. As time allows, more questions can be addressed in class.

Statistics Practice Homework (6 @ 15 points each): You will be given assignments to complete that will allow you to practice statistical analyses and interpretations. The first part of the assignment requires that you read and summarize an article that utilizes a specific statistic. The article you pick is your choice, but my hope is that you will read articles that will be relevant to your research topic. The second portion involves exercises in R. I grade based on effortful attempts on all problems as well as correctness. Assignments with more detailed directions are available on Canvas and may be completed any time before the due date. Files will be submitted on Canvas in .doc, .docx, or .pdf file types only.

Other Worksheets and Written Assignments (75 points): You will have assignments (5-15 points each) to complete throughout the semester. From these assignments, you will gain experience reviewing research, communicating research findings, and interpreting statistics. These assignments are also meant to reinforce theories and concepts. I grade based on effortful attempts on all problems as well as correctness. Detailed directions for each assignment are on Canvas. Files will be submitted on Canvas in .doc, .docx, or .pdf file types only.

Final Learning Demonstration (80 points): We will celebrate all of our learning at the end of the semester. On the last day of class (not during finals week), you will demonstrate your learning by responding to written questions (multiple choice, short answer, and/or essay) that will require cumulative knowledge.

Final Research Celebration (20 points): We will be celebrating the learning of the Methods II students by attending their research poster session. You will celebrate the learning of your peers by asking them meaningful questions about their work and congratulating them on their work. To earn credit, you must attend the session, complete a worksheet, and maintain a positive and professional demeanor during the session. There will be no make-ups for students who are absent.

Extra Credit (up to 6 points): You may earn up to 6 points of extra credit (a possible 1.6% grade bump) by submitting a creative assignment related to course content. Examples include creating a music video, dance, art piece, poem or story, or something else that uses your talents. A basic powerpoint or prezi is not sufficient for this assignment. Your extra credit will be graded according to time spent and effort, not according to the subjective quality of your creativity. With your assignment, you must include the following statement: "I am submitting this for ____ points of extra credit. I spent approximately ____(minutes/hours) on this assignment and I believe it contributed to my learning of and/or reflection on statistics or research."
Extra credit must be submitted by the day of the final learning demonstration with no exceptions.

Grading Scale (375 total points)

A = 93-100%
A- = 90-92.9%
B+ = 88-89.9%
B = 84-87.9%
B- = 80-83.9%
C+ = 77-79.9%
C = 70-76.9%
C- = 65-69.9%
D+ = 62-64.9%
D = 55-61.9%
D- = 50-54.9%
F = 49.9% or less

Grades will not be rounded up for individual students [students seeking a grade boost should complete extra credit and/or take advantage of redoing assignments (see policies below)]

Course Policies and Expectations

General and Attendance

- It is expected that you will read and take notes prior to class. Such practices will enable you to succeed on the learning checks and also fully participate in class activities.
- It is expected that you will take notes in class, regardless of whether a powerpoint is presented.
- Attendance will be taken at the beginning of the class period. If you get up and leave after roll has been taken, you will be counted absent unless you notify me before class begins. Absences will be accounted for and it is your responsibility to monitor them. I will honor the university's attendance policy: no matter the reason for absence, students missing 10% of class meetings (4 classes) may be filed for de-enrollment. Students missing 20% of class meetings (8 classes) may be de-enrolled without

notice, or, after the university drop date, receive the appropriate grade for their work and participation. Excused absences due to university approved events as given in writing by university administration will be honored and will not count toward de-enrollment.

- If you miss class, you are responsible for obtaining [from a classmate] lecture material, class exercises, and all in-class announcements AND submit any assignments on time, if applicable.
- Assignments are individual work; you are expected to complete the work on your own unless otherwise specified.
- You may submit assignments early.
- You are responsible for all content/material that is found on Canvas, including announcements.
- Work submitted on Canvas must be in .doc or .docx file types only. The student is responsible for making sure Canvas files work and go through Turnitin. Files that do not work or can't go through Turnitin will be considered late until the problem is rectified.

Technology

- I do not recommend the use of laptops for notetaking in this course. Written notes are more efficient for writing statistical symbols and also aid in memory recall. That being said, you may use laptops/iPads for notetaking as long as it does not become a distraction to yourself or others.
- Laptops are encouraged for purposes of doing statistical analyses and reading scientific articles, although we will primarily do this in the computer lab.
- Recordings (audio or visual) of class are not permitted without written permission from the instructor.
- Cellphones should not be used in class.

Tardiness and Late Work

- If you are more than 15 minutes late to class, you will be counted absent (but you are welcome to sit-in on the class).
- Late work is accepted for 5 days, with a 10% deduction for each day, including weekend days. Deadlines are according to the schedule in the syllabus. Work that is submitted late due to tardiness to class is still considered late.
- If you do not like your grade for a homework assignment or worksheet, you may redo the assignment and submit it according to the late policy. In other words, if you get an unsatisfactory grade back, you can redo the assignment within 24 hours of grading at a 10% deduction, the next day for a 20% deduction, or the day after for a 30% deduction. The second grade will be final. To take advantage of this option, the assignment must have been initially submitted on-time.

Learning Check (LC) and Demonstration Information

- LCs/exams may consist of multiple choice, fill-in-the-blank, and/or short answer questions. You may be required to interpret and evaluate statistics, R output, and research conclusions in addition to demonstrating knowledge of relevant definitions and theories from lectures and required readings.
- Students must bring at least one working pencil, eraser, and pen to every learning check and demonstration.
- Students may not come and go during learning checks or demonstrations. If you need to leave the room *for any reason*, you must submit your LC/exam at that time.
- Backpacks must be closed with all electronics, including smart watches, turned off and out of sight. Students who use or look at a personal electronic device for any reason during an LC/exam will be penalized for academic dishonesty.
- If you are late to a LC/exam, you may take the LC/exam if you arrive prior to the first LC/exam being handed in. Tardy students will not be given extra time.
- LCs may not be made up for any reason. Two LCs are dropped at the end of the semester.
- Successful completion of this class requires attending the Research Celebration ('the final') **on its scheduled day**.
- If the Learning Demonstration is missed for any reason, the student may have an opportunity at an alternative time to demonstrate his/her learning and receive up to 70% credit on the opportunity.

Additional Info, University Resources and Policies

About Contacting Me. I welcome your questions (about class or otherwise) and would enjoy hearing from you throughout the semester. Do not hesitate to email me or take advantage of office hours. We can schedule meetings outside of office hours if needed. I will give prompt email replies during the day Monday - Friday. It is not guaranteed that I will read emails in the evenings and weekends, so please do not leave important questions for the last minute! If you have questions pertaining to R, please try to use your textbook and/or Google to troubleshoot before emailing me.

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.

Academic Integrity. 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. Academic dishonesty also includes such acts as cheating, fabrication of information, misrepresentations, having unauthorized possession of exams or acquiring/providing information about exams to offer/get an advantage. Academic dishonesty may lead to a zero for that assignment or examination, a zero for your professionalism grade, and/or an F 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 information.

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. At PLNU, these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). After the student files the required documentation, the DRC, in conjunction with the student, will develop an adjustment plan (AP) to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. DRC students should speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

Title IX Office. If you or someone you know would like help related to an experience of sexual violence including sexual assault, harassment, domestic violence, dating violence, stalking or other type of non-consensual sexual conduct, please contact the Title IX Coordinator at Point Loma Nazarene University, Caye Smith (619-849-2479). Reporting is also available on the Title IX website. The Title IX office understands the sensitive nature of these situations and can provide information about available on- and off-campus resources, such as counseling and psychological services, medical treatment, academic support, university housing and other forms of assistance. Staff members at the office will also explain your rights and the judicial process options, if you choose to file a complaint. If you or someone you know feels unsafe or may be in imminent danger, please call the PLNU Department of Public Safety (619-849-2525) or San Diego Police Department (9-1-1) immediately.

Wellness Center. If you or someone you know would like help related to a physical or mental health problem, (e.g., depression, anxiety, difficulty focusing on school or managing daily needs, grief, trauma resolution, sleep or eating changes, etc.), please contact the Wellness Center. The Wellness Center exists to provide students with services pertaining to health, broadly. Walk-ins are accepted, or appointments can be scheduled. Visit the First Floor of Nicholson Commons or call 619-849-2574. If there is an emergency situation after hours, please call the PLNU Department of Public Safety (619-849-2525) or San Diego Police Department (9-1-1) immediately.

Changes to the Syllabus: This document is subject to changes, including due dates in the schedule. I will communicate changes in class, on Canvas, or both. It is the students' responsibility to maintain records of changes to this syllabus.

Week	Day	Readings and Activities (Complete Prior to Class)	Learning Checks (LC)/ Assignments Due
Week 1 (Jan 14 - 17) Science, Statistics, and Research	T		
	W		
	F	RMP Ch. 1 Lecture 1 Canvas Questions	LC 1 (Ch1 and Syllabus)
Week 2 (Jan 20 - 24) Finding and Reading Good Research	M	*No Class*	*MLK Jr Day*
	W	RMP Ch. 2 Lecture 2 Canvas Questions	LC 2
	F	Download Zotero (optional)	
Week 3 (Jan 27 - 31) Variables, Types of Claims, and Validity	M	LSR Ch. 2 Lecture 3 Canvas Questions	LC 3
	W		
	F		Finding Research Worksheet and summaries due by classtime
Week 4 (Feb 3 - 7) Introduction to R	M	LSR Ch. 3 Lecture 4 Download R and RStudio	LC 4 (bring laptop to class if downloading R on personal computer)
	W		
	F		R Worksheet
Week 5 (Feb 10 - 14) Descriptive Statistics	M	LSR Ch. 5 (skip sections 5.5 and 5.8) Lecture 5 Canvas Questions	LC 5
	W		
	F		Descriptives and Graphs Homework (R) (LSR Ch. 6 for additional help)
Week 6 (Feb 17 - 21) Probability and Types of Distributions	M	LSR Ch. 9 Lecture 6 Canvas Questions	LC 6
	W		
	F		
Week 7 (Feb 24 - 28) Null Hypothesis Testing and Confidence Intervals	M	LSR Ch. 11 Lecture 7 Canvas Questions	LC 7
	W		
	F	*No Class* Lecture 7b	Error worksheet z-test and CI practice
Week 8 (Mar 2 - 6) Comparing Means	M	LSR Ch. 13 Lecture 8 Canvas Questions	LC 8
	W		t-test practice worksheet
	F		
Week 9 (Mar 9 - 13)	M	*No Class*	*Spring Break*
	W	*No Class*	*Spring Break*

	F	*No Class*	*Spring Break*
Week 10 (Mar 16 - 20) ANOVA	M	LSR Ch. 14 Lecture 9 Canvas Questions	LC 9 t-test Homework (R)
	W		
	F		
Week 11 (Mar 23 - 27) Factorial ANOVAS	M	LSR Ch. 16 (read through 16.4) Lecture 10 Canvas Questions	LC 10 ANOVA Homework (R)
	W		
	F		
Week 12 (Mar 30 - Apr 3) Regression	M	LSR Ch. 15 (read through 15.8) Lecture 11 Canvas Questions	LC 11 Factorial ANOVA Homework (R)
	W		
	F		
Week 13 (Apr 6 - 10) χ^2	M	LSR Ch. 12 Lecture 12 Canvas Questions	LC 12 Regression Homework (R)
	W		
	F	*No Class*	*Easter*
Week 14 (Apr 13 - 17) χ^2 and Recap	M	*No Class*	*Easter*
	W		
	F		χ^2 Homework (R)
Week 15 (April 20 - 24) Developing your own Project	M	RMP Ch. 3 Lecture 14 Canvas Questions	LC 13
	W		Final Research Question + 5 Sources in class
	F		Research Question/Design Worksheet
Week 16 (Apr 27 - May 1) Review	M	Review	
	W	Review	
	F	Review	**Learning Demonstration**
Wednesday, May 6, 4:30-6pm @ Colt Forum			**Research Celebration**

RMP = *Research Methods in Psychology* (Beth Morling)
LSR = *Learning Statistics in R* (Danielle Navarro)
Lectures will be posted on Canvas under Modules. Submit your Canvas questions in the Module for that week.
Worksheets and Homework are due by 11:59pm unless noted otherwise