Syllabus

19 02 POINT LOMA NAZARENE UNIVERSITY	**Department of Mathematical, Information, and Computer Sciences** MTH3063 Calculus Based Statistics With R **(3 units)**
Spring 2025 January 13th - May 9th	

Meetings	Final Exam	Instructor:	Email:	Phone:	Office Hours:
MWF 8:30-9:25 **RS 265**	**7:30-10:00 am** **Friday 9-May-2025**	Greg Crow, Ph.D.	gcrow@pointloma.edu	619.849.2604	Posted in Canvas

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

Department Mission

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

Course Description

MTH 3063 (3 Units) Calculus Based Statistics With R

A first course in descriptive and inferential statistics for general students who have taken calculus. Topics include experimental design, sampling and sampling distributions, estimation and hypothesis testing. This course also provides a basic introduction to statistical analysis in the statistical software package R. Not applicable toward a major in Mathematics.

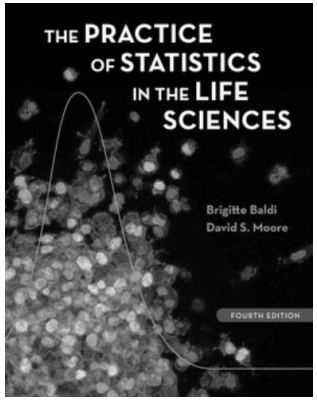
Prerequisite(s): MTH 1044 or MTH 1064 or equivalent.

Course Learning Outcomes

1. Students will be able to compute measures of central tendency for data.
2. Students will be able to compute measures of dispersion for data.
3. Students will be able to use statistical methods to make inferences from data.
4. Students will be able to apply their technical knowledge to solve problems.

Required Texts and Recommended Study Resources

Baldi and Moore: *The Practice of Statistics in the Life Sciences,* 4th Edition



Assessment and Grading

Graded Components

- **Weekly Classwork:** Attendance at each class is required. In these class meetings, we will have lectures, work on activities and problems. Some classwork will be graded, and for some you will get full credit just for attempting.
- **Written Homework**: The homework is designed to allow you to grasp the concepts of Statistics; it is not an end in itself. The homework problems will be taken from the Textbook and hand written on paper. There may also be other activities that are completed as homework. Each homework set will be due on Friday of the week after it is assigned. Please see the schedule below. Late homework will not be accepted without prior consent or a well-documented emergency beyond your control. Up to a maximum of one homework assignment will be accepted up to 3 days late provided that consent is received from the professor before it is due. Written homework that is submitted late without prior consent will be recorded with a score of zero. The lowest homework score will be dropped prior to computing the final course grade.

  In the event that our in person class is prohibited from meeting in person in a given week, please scan or photograph the pages, and upload the file to Canvas as a .pdf, .jpg, .jpeg, .png, or .docx (but not Google Docs). If you take a photograph with your phone, then please turn off the setting for *Live Photos* or *Motion Photo* prior to taking the picture. If you use Google Docs, please export to a .pdf and upload that file.

- **Labs -** The labs will be posted in Canvas and are due in Canvas at the scheduled times (by 11:59 pm on Saturday). Up to a maximum of one Lab assignment will be accepted up to 3 days late provided that consent is received from the professor befo due. Lab assignments that are submitted late without prior consent will be recorded with a score of zero.

- **Examinations and the Final Examination -** There will be a Lab Final Examination, two Mid-Semester Examinations and a comprehensive Final Examination. The Lab Final Examination will include material based on the Labs. Both Mid-Semester Examinations and the Final Examination will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. The examination schedule is included in the daily schedule. The instructor will not accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents. No examination shall be missed without prior consent or a well-documented emergency beyond your control. In such cases, all make-up exams will occur at 8:30 am on the Saturday between classes and Final Exam week. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control.
- **Final Exam: Scheduled on** Friday 9-May-2025 from 7:30 - 10:00 AM in the classroom.

Grading Distribution	**Percent**
Weekly Participation	5
Written Homework	15
Labs	10
Exams (2 at 17.5% each)	35
Lab Final Exam	5
Final Exam	30
Total	**100**

Grading Scale

Grades are based on the number of points accumulated throughout the course with the following exception. A student must pass at least one of Examination 1, Examination 2, or the Final Examination in order to pass the class. That is, a score of 60% must be

achieved on one of Examination 1, Examination 2, or the Final Exam or else the final grade will be an F regardless of all other point totals. Approximate minimal percentages required to obtain a given grade are

Standard Grade Scale Based on Percentages					
	A	**B**	**C**	**D**	**F**
+		[87.5-90.0)	[77.5-80.0)	[67.5-70.0)	
	[92.5-100]	[82.5-87.5)	[72.5-77.5)	[62.5-67.5)	[0.0-60.0)
−	[90.0-92.5)	[80.0-82.5)	[70.0-72.5)	[60.0-62.5)	

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 **Traditional Undergraduate Records: Final Exam Schedules (http://www.pointloma.edu/experience/academics/class-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.

Incompletes and Late Assignments

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. We understand that life happens, if you contact your instructor prior to the due date of the assignment you may request one extension as indicated above. Incompletes will only be assigned in extremely unusual circumstances.

Artificial Intelligence (AI) Policy

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc) to generate ideas, but you are not allowed to use AI tools to generate content (text, video, audio, images) 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.

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 (https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=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.

Additional Course Information:

Additional PLNU policies and practices that apply to this course can be found at the following link:

> **https://docs.google.com/document/d/18i1pUoY0iCfB8w7JKxVvACQW309X-JRB/edit?usp=sharing&ouid=116164865489739533893&rtpof=true&sd=true (https://docs.google.com/document/d/18i1pUoY0iCfB8w7JKxVvACQW309X-JRB/edit?usp=sharing&ouid=116164865489739533893&rtpof=true&sd=true)**

Spring 2025

MTH 3063

	Sun	Monday	Tues	Wednesday	Thu	Friday	Sat
January	12	13 Introduction Ch. 1: Picturing Distributions with Graphs	14	15 Ch. 2: Describing Distributions with Numbers *Lab 1: Loading Data (Laptop, Notebook, or Other)*	16	17 Ch. 2: Describing Distributions with Numbers	18
	19	20 **Martin Luther King Jr. Day (No Classes)**	21	22 Ch 3: Scatterplots & Correlation	23	24 Ch. 3: Scatterplots & Correlation *Lab 1: Open Lab*	25 Due: Lab 1
	26	27 Ch. 4: Regression	28	29 Ch. 4: Regression *Lab 2: Summarizing Data*	30	31 Ch. 5: Two-Way Tables	1
February	2	3 Ch. 6: Samples & Observational Studies **Spiritual**	4	5 Ch. 7: Designing Experiments **Renewal**	6	7 Ch. 7: Designing Experiments *Lab 2: Open Lab* **Week**	8 Due: Lab 2
	9	10 Ch. 9: Essential Probability	11	12 Ch. 10: Independence & Conditional Probability *Lab 3: Another Approach to Graphics*	13	14 Ch. 10: Independence & Conditional Probability	15
	16	17 Ch. 11: The Normal Distributions	18	19 Ch. 11: The Normal Distributions	20	21 Ch. 13: Sampling Distributions *Lab 3: Open Lab*	22 Due: Lab 3
	23	24 Ch. 13: Sampling Distributions	25	26 Ch. 14: Introduction to Inference *Lab 4: Is this data Normal?*	27	28 Ch. 14: Introduction to Inference	1
March	2	3 Ch. 15: Inference in Practice	4	5 **Review for the Exam**	6	7 **Exam 1**	8
	9	10 **Spring**	11	12 **Break**	13	14 **Week**	15
	16	17 Ch. 15: Inference in Practice	18	19 Ch. 17: Inference about a Population Mean	20	21 **Exam 1 Returned** Ch. 17: Inference about a Population Mean *Lab 4: Open Lab*	22 Due: Lab 4
	23	24 Ch. 17: Inference about a Population Mean	25	26 Ch. 18: Comparing Two Means *Lab 5: Hypothesis Tests & Confidence Int. for Means*	27	28 Ch. 18: Comparing Two Means	29
	30	31 Ch. 24: One-Way Analysis of Variance (ANOVA)	1	2 Ch. 24: One-Way Analysis of Variance (ANOVA)	3	4 Ch. 25: Review of Inference for Means *Lab 5: Open Lab*	5 Due: Lab 5
April	6	7 **Review for the Exam**	8	9 **Exam 2**	10	11 Ch.19: Inference about a Population Proportion *Lab 6: Hypothesis Tests & Conf. Int. for Proportions*	12
	13	14 Ch.19: Inference about a Population Proportion	15	16 *Lab 7: The Central Limit Theorem* *Lab 6: Open Lab*	17	18 Easter Recess	19
	20 **Easter**	21 Easter Recess	22	23 **Exam 2 Returned** Ch: 20: Comparing Two Proportions	24	25 Ch: 20: Comparing Two Proportions	26 Due: Lab 6
	27	28 Ch: 22: Chi-Square Test (χ^2)	29	30 **Lab Final Exam**	1	2** **Review for Final Exam** *Lab 7: Open Lab*	3*** Due: Lab 7
May	4	5	6	7	8	9-May **Final Exam** **7:30 – 10:00 AM**	10

** The last *Written Homework* (April 23-30) will not be accepted after 1:00 pm on 2-May-2025.

****Lab 7* will not be accepted after 11:59 pm on 3-May-2025