


Syllabus

 POINT LOMA NAZARENE UNIVERSITY	Department of Mathematical, Information, and Computer Sciences MTH3063 Calculus Based Statistics With R (3 units)
Spring 2024 January 8 th - May 3 rd	

Meetings	Final Exam	Instructor:	Email:	Phone:	Office Hours:
MWF 8:30-9:25 RS 395	7:30-10:00 am Wednesday May 1st, 2023	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.

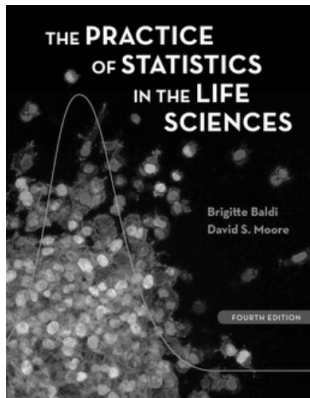
COURSE LEARNING OUTCOMES

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 work have lectures, work on activities and problems. Some classwork may be graded, and 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 before it is 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 Wednesday 1-May-2024 from 7:30 - 10:00 AM in the classroom. Successful completion of this class requires taking the final examination on its scheduled day. The final examination schedule is posted on the **Class 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.

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)	

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.

CLASS ENROLLMENT

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.



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 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](#) (<http://catalog.pointloma.edu/content.php?catoid=18&navoid=1278>) for definitions of kinds of academic dishonesty and for further policy information.

ARTIFICIAL INTELLIGENCE (AI) POLICY

You are allowed to use Artificial Intelligence (AI) tools (e.g, ChatGPT, iA Writer, Marmot, Botowski) 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. 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 issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

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 and/or if they do not wish to utilize some or all of the elements of their AP in that course.

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.



EAC.

SEXUAL MISCONDUCT AND DISCRIMINATION POLICY

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 (<http://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 (<https://mail.google.com/mail/?view=cm&fs=1&tf=1&to=counselingservices@pointloma.edu>) or find a list of campus pastors at pointloma.edu/title-ix (<http://pointloma.edu/title-ix>).

PLNU ATTENDANCE AND PARTICIPATION POLICY

Attendance is expected at each class session. In the event of an absence you are responsible for the material covered in class and the assignments given that day.

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 withdrawal date or, after that date, receive the appropriate grade for their work and participation. See [Academic Policies](http://catalog.pointloma.edu/content.php?catid=18&navoid=1278) (<http://catalog.pointloma.edu/content.php?catid=18&navoid=1278>) for further information about class attendance.

COURSE MODALITY DEFINITIONS:

1. **In-Person:** Course meetings are face-to-face with no more than 25% online delivery.
2. **Online:** Coursework is completed 100% online and asynchronously.
3. **Online Synchronous:** Coursework is completed 100% online with required weekly online class meetings.
4. **Hybrid:** Courses that meet face-to-face with required online components.

USE OF TECHNOLOGY:

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements please refer to the [Technology and System Requirements](https://help.pointloma.edu/TDCClient/1808/Portal/KB/ArticleDet?ID=10) (<https://help.pointloma.edu/TDCClient/1808/Portal/KB/ArticleDet?ID=10>)



information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams requires a computer with a camera (tablets are not compatible) to complete exams online.

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

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** (<https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures>) to view which states allow online (distance education) outside of California.

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 students have questions, a desire to meet with the chaplain or have prayer requests you can contact the **Office of Student Life and Formation** (<https://www.pointloma.edu/offices/spiritual-development>).



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

** The last *Written Homework* (April 15-26) will not be accepted after 1:00 pm on 26-Apr-2024.

****Lab 7* will not be accepted after 11:59 pm on 27-Apr-2024.