



School of STEM: Department of Mathematical, Information and Computer Sciences

**MTH3063—Calculus Based Statistics With R**

3 Units

*Fall 2025*

**MW 11:00-1:55 am**

**Rohr Science 295**

**Final Exam: Wednesday, 17-Dec-2025, 10:30 am–1:00 pm**

**Instructor Title and Name:** Dr. Greg Crow

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**Email:** gcrow@pointloma.edu

**Office Location and Office Hours:** Rohr Science 252 (times 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

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.

## Program and 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

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.

1. *The Practice of Statistics in the Life Sciences*, 4<sup>th</sup> Edition by Baldi and Moore
2. A cheap calculator other than your phone, tablet, or computer (with at least a square root key).
3. A calculator (TI-30XIIS) will be provided for you to use on exams. You may not use your own calculator on exams.
4. Laptop or access to a computer with Java enabled in the web browser
5. R and RStudio (see Lab 1 for download and installation instructions)

## Assessment and Grading

Grading distribution:

- Weekly Participation 5%
- Written Homework: 15%
- Labs: 10%
- Exams (2 at 17.5% each): 35%
- Lab Final Exam: 5%
- Final Exam: 30%

Grades will be based on the following:

- **Weekly Classwork:** Attendance at each class is required. In these class meetings, we will have lectures, work on activities, problems, and labs. Some classwork will be graded, and for some you will get full credit just for attempting.
- **Written Homework:** Homework problems will be assigned regularly and posted on Canvas. A homework assignment is late if it is not submitted at the beginning of class on the due date. Please check regularly to ensure that you are keeping up with the homework. Late homework will not be accepted with the following exception: 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. Lab assignments that are submitted late without prior consent will be recorded with a score of zero. Your lowest written homework score will be dropped.
- **Labs:** The labs are due at the scheduled dates and times and are submitted ONLY in Word or PDF format in Canvas. Late lab assignments will not be accepted with the following exception: 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. Your lowest lab assignment score will be dropped.
- **Examinations and the Final Examination:** 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. No examination shall be missed without a well-documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without a well-documented emergency beyond your control.
- **Late work will not be accepted.** Homework and lab assignments that are submitted late will be recorded with a score of zero. During the course, you may find that you are unable to submit homework on time due to a personal situation (for example, a personal or family illness, accident, business trip, etc.). This is why your lowest assignments will be dropped, as described above. Beyond the single use 3-day extensions described above, there are no exceptions to this policy so please use your dropped assignments wisely.

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 the Examinations, 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:

**Sample Standard Grade Scale Based on Percentages**

| <b>A</b>     | <b>B</b>      | <b>C</b>      | <b>D</b>      | <b>F</b> |
|--------------|---------------|---------------|---------------|----------|
| A [92.5-100] | B+ [87.5-90)  | C+ [77.5-80)  | D+ [67.5-70)  | F [0-60) |
| A- [90-92.5) | B [82.5-87.5) | C [72.5-77.5) | D [62.5-67.5) |          |
|              | B- [80-82.5)  | C- [70-72.5)  | D- [60-62.5)  |          |

**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](#) 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 (labs are due on Saturday)—including assignments posted in Canvas. 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](mailto:EAC@pointloma.edu) or 619-849-2533). 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. Professors are able to view a student's approved accommodations through Accommodate.

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 accommodations.

## **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](#)

## **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/11BgAANL0J9tjt837d24EZ181ukM2qzHF/edit>

## **TUG Syllabus General Policies Fall 2025**

### **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.

### **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 distance education outside 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.

## **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 other forms of discrimination, you can find more information on reporting and resources at [www.pointloma.edu/nondiscrimination](http://www.pointloma.edu/nondiscrimination).

## **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](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](mailto:counselingservices@pointloma.edu) or find a list of campus pastors at [pointloma.edu/Title-IX](http://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](http://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.

**Note:** The information below must be included under the “PLNU Attendance and Participation Policy” Section if you are teaching an Online or Hybrid course.

### **PLNU Course Modality Definitions**

1. Online Courses: These are courses with class meetings where all instruction and interaction is fully online.
  - a. Synchronous Courses: At least one class meeting takes place at a designated time.
  - b. Asynchronous Courses: All class meetings are asynchronous.
2. Hybrid Courses: These are courses with class meetings that take place both in the classroom and online synchronously and/or asynchronously.
3. In-Person Courses: These are courses that meet in person with the instructor and students in a physical classroom setting. With approval by the area dean, this may include up to 25% of qualified class interactions through a Learning Management System (such as Canvas).

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 Undergraduate Academic Catalog.

### **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.

### **Use of Technology**

**Note:** If the class is Online or Hybrid course.

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](#) 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 nor allowable) 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.

## 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](#)
- [Website](#)
- Email: [writingcenter@pointloma.edu](mailto:writingcenter@pointloma.edu)

|          | Sun       | Monday   | Tues                                   | Wednesday   | Thurs                                   | Friday  | Sat  |
|----------|-----------|--|--|---|---|---|--|
| Aug      | 31<br>1   | 1<br><b>Labor Day</b>  | 2                                      | 3<br>Introduction<br>Ch. 1: Picturing Distributions with Graphs   | 4                                       | 5<br>Ch. 2: Describing Distributions with Numbers<br>Lab 1: Loading Data (Laptop, Notebook, or Other) | 6  |
|          | September | 7<br>2   | 7<br>Ch. 3: Scatterplots & Correlation | 9   | 10<br>Ch. 3: Scatterplots & Correlation | 11  | 12<br>Ch. 4: Regression<br>Lab 1: Open Lab |
| 14<br>3  |           | 15<br>Ch. 4: Regression  | 16                                     | 17<br>Ch. 5: Two-Way Tables<br>Lab 2: Summarizing Data  | 18                                      | 19<br>Ch. 6: Samples & Observational Studies  | 20   |
| 21<br>4  |           | 22<br>Ch. 7: Designing Experiments                                 | 23                                     | 24<br>Ch. 7: Designing Experiments  | 25                                      | 26<br>Ch. 9: Essential Probability<br>Lab 2: Open Lab   | 27<br>Due:<br>Lab 2                        |
| 28<br>5  |           | 29<br>Ch. 10: Independence & Conditional Probability               | 30                                     | 1<br>Ch. 10: Independence & Conditional Probability<br>Lab 3: Another Approach to Graphics                    | 2                                       | 3<br>Ch. 11: The Normal Distributions   | 4  |
| October  | 5<br>6    | 6<br>Ch. 11: The Normal Distributions                              | 7                                      | 8<br>Ch. 13: Sampling Distributions   | 9                                       | 10<br>Ch. 13: Sampling Distributions<br>Lab 3: Open Lab   | 11<br>Due:<br>Lab 3                        |
|          | 12<br>7   | 13<br>Ch. 14: Introduction to Inference                            | 14                                     | 15<br>Ch. 14: Introduction to Inference<br>Lab 4: Is this data Normal?  | 16                                      | 17<br>Ch. 15: Inference in Practice   | 18   |
|          | 19<br>8   | 20<br><b>Review for the Exam</b>                                   | 21                                     | 22<br><b>Exam I</b>   | 23<br>Fall<br>Break                     | 24  | 25   |
|          | 26<br>9   | 27<br>Ch. 15: Inference in Practice                                | 28                                     | 29<br>Ch. 17: Inference about a Population Mean   | 30                                      | 31<br>Ch. 17: Inference about a Population Mean<br>Lab 4: Open Lab                                    | 1<br>Due:<br>Lab 4                         |
| November | 2<br>10   | 3<br>Ch. 17: Inference about a Population Mean<br><b>Spiritual</b> | 4<br>—                                 | 5<br>Ch. 18: Comparing Two Means<br>Lab 5: Hypothesis Tests & Confidence Int. for Means<br><b>Renewal</b>     | 6<br>—                                  | 7<br>Ch. 18: Comparing Two Means<br><b>Week</b>   | 8  |
|          | 9<br>11   | 10<br>Ch. 24: One-Way Analysis of Variance (ANOVA)                 | 11                                     | 12<br>Ch. 24: One-Way Analysis of Variance (ANOVA)  | 13                                      | 14<br>Ch. 25: Review of Inference for Means<br>Lab 5: Open Lab  | 15<br>Due:<br>Lab 5                        |
|          | 16<br>12  | 17<br>Ch. 19: Inference about a Population Proportion              | 18                                     | 19<br>Ch. 19: Inference about a Population Proportion<br>Lab 6: Hypothesis Tests & Conf. Int. for Proportions | 20                                      | 21<br><b>Review for the Exam</b>  | 22   |
|          | 23<br>13  | 24<br><b>Exam II</b>   | 25                                     | 26<br><b>Thanksgiving Recess</b>  | 27                                      | 28  | 29   |
| December | 30<br>14  | 1<br>Ch. 20: Comparing Two Proportions                             | 2                                      | 3<br>Lab 7: The Central Limit Theorem<br>Lab 6: Open Lab  | 4                                       | 5<br>Ch. 20: Comparing Two Proportions  | 6<br>Due:<br>Lab 5                         |
|          | 7<br>15   | 8<br>Ch. 22: Chi-Square Test ( $\chi^2$ )                          | 9                                      | 10<br><b>Lab Final Exam</b>   | 11                                      | 12**<br><b>Review for the Final Exam</b><br>Lab 7: Open Lab   | 13***<br>Due:<br>Lab 7                     |
|          | 14        | 15   | 16                                     | 17<br>10:30 AM–1:00 PM<br><b>Final Exam</b>   | 18                                      | 19  | 20   |

\*\* The last Written Homework (December 1-8) will not be accepted after 1:00 pm on 12-Dec-2025.

\*\*\*Lab 7 will not be accepted after 11:59 pm on 13-Dec-2025