


Syllabus

 <p>POINT LOMA NAZARENE UNIVERSITY</p>	<p>Department of Mathematical, Computer, and Information Sciences</p> <p>MTH 2003 Introduction to Statistics</p> <p>3 Units (TR, 4:00-5:15pm, Liberty Station 203)</p>
<p>Fall 2024 September 2nd - December 20th</p>	

Section:	Instructor:	Final Exam	Phone:	Office Hours:	Email:
<p>Sec 3:</p> <p>TR, 4:00-5:15, LBRT 203</p>	<p>Professor Greg Crow, Ph.D.</p>	<p>Monday 16- Dec-2024 from 7:30- 10:00 AM in the Large Central Room at Liberty Station</p>	<p>619.849.2604</p>	<p>Rohr Science 252 Posted in Canvas</p>	<p>gcrow@pointloma.edu</p>



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.

WELCOME MESSAGE

I look forward to spending the semester exploring statistics with you. You will be amazed at how easy some concepts are to understand, and equally amazed at how challenging some problems are to solve. Please know that your fellow classmates and I will be here to help you through it. Also, persistence and hard work mean a lot more in this class than “intelligence.” Put in time and effort and you will succeed. Skip class and homework and you will struggle.

COURSE DESCRIPTION

A first course in statistics for the general student. Description of sample data, probability theory, theoretical frequency distributions, sampling, estimation, and hypothesis testing. Not applicable toward a major in mathematics.

Prerequisite: Mathematics 0099 (or equivalent)

COURSE LEARNING OUTCOMES -

1. Students will be able to apply their technical knowledge to solve problems.
2. Students will be able to compute measures of central tendency for data.
3. Students will be able to compute measures of dispersion for data.
4. Students will be able to use statistical methods to test hypotheses.
5. Students will be able to understand and create arguments supported by quantitative evidence, and they can clearly communicate those arguments in a variety of formats.



REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Textbook: *The Basic Practice of Statistics*, 9th ed. by Moore, Notz and Fligner
2. Printed Paper Book (or Access to Achieve, available through your online access key)
3. A cheap calculator other than your phone, tablet, pad, or computer (with at least a square root key)
4. Laptop or access to a computer with Java enabled in the web browser
5. Statistical Software (there are many options for purchase locations, here are examples):
 - Excel
 - You are entitled to free use of Excel while at PLNU [How To install Excel for Free Through PLNU.pdf](#)
(<https://canvas.pointloma.edu/courses/60943/files/5113521?wrap=1>)_ ↓
(https://canvas.pointloma.edu/courses/60943/files/5113521/download?download_frd=1)
 - R
 - <http://cran.r-project.org/bin/windows/base/> ⇨ (<http://cran.r-project.org/bin/windows/base/>)(free)
 - <http://cran.r-project.org/bin/macosx/> ⇨ (<http://cran.r-project.org/bin/macosx/>)(free)

COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 3-unit class delivered over fifteen weeks. It is anticipated that students will spend a minimum of 37.5 participations hours per credit hour on their coursework. For this course, students will spend an estimated 112.5 total hours meeting the course learning outcomes. Specific details about how the class meets the credit hour requirement can be provided upon request.

ASSESSMENT AND GRADING

Graded Components

- **Weekly Classwork:** In class meetings, we will work on to 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 usually be due one week from when 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 the class is prohibited from meeting in person, 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 are due at the scheduled dates and times, and are submitted ONLY in Word, Excel, or .pdf format in Canvas (e.g. Google Docs and Apple Numbers are not permitted).** 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.** 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 prior consent or a well-documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control. The examination schedule is included in the daily schedule. This instructor does not intend to accept excuses such as poor communication with parents, benefactors, surf team sponsors and/or travel agents.

Final Exam: Scheduled on Monday 16-Dec-2024 from 7:30-10:00 AM in the Large Central Room at Liberty Station. 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
Final Examination	30
Two Examinations at 17.5% each	35



Lab Final Examination	5
Labs	10
Written Homework	15
Classwork & Participation	5
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 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

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)



Standard Grade Scale Based on Percentages					
	A	B	C	D	F
–	[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. 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

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 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.

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>).

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.

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.

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

CLASS ENROLLMENT:

It is the student’s responsibility to maintain their 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.

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 your professor or the **Office of Student Life and Formation** (<https://www.pointloma.edu/offices/spiritual-development>).



	Sun	Mon	Tuesday	Wed	Thursday	Fri	Sat
September	1	2 Labor Day	3 Introduction <i>Lab Assigned 0-Introduction Lab Load Software (Excel or R)</i>	4	5 1: Picturing Distributions w/ Graphs 2: Describing Distributions: Numbers	6	7
	8	9	10 4: Scatterplots and Correlation 5: Regression Analysis <i>Lab Assigned 1-Summarizing Data</i>	11	12 6: Two-way Tables 8: Producing Data: Sampling Written HW Due: Ch. 1 & 2	13	14 <i>Due: Lab 0</i>
	15	16	17 9: Producing Data: Experiments <i>Lab Assigned 2-Relationships Between 2 Vars</i>	18	19 3: The Normal Distributions Written HW Due: Ch. 4, 5 & 6	20	21 <i>Due: Lab 1</i>
	22	23	24 3: The Normal Distributions <i>Lab Assigned 3-Gathering Data</i>	25	26 Lab Review and Catch Up Written HW Due: Ch. 8 & 9	27	28 <i>Due: Lab 2</i>
	29	30	1 15: Sampling Distributions <i>Lab Assigned 4-Normal Distributions</i>	2	3 16: Confidence Intervals: The Basics Written HW Due: Ch. 3	4	5
October	6	7	8 Review for the Exam	9	10 Exam I	11	12 <i>Due: Lab 3</i>
	13	14	15 16: Confidence Intervals: The Basics 17: Tests of Significance: The Basics <i>Lab Assigned 5-Sampling Distributions</i>	16	17 17: Tests of Significance: The Basics Written HW Due: Ch. 15 & 16	18	19 <i>Due: Lab 4</i>
	20	21	22 Lab Review and Catch Up	23	24 Fall Break	25	26
	27	28	29 18: Inference in Practice <i>Lab Assigned 6-Confidence Intervals Spiritual</i>	30	31 18: Inference in Practice Written HW Due: Ch. 17 Renewal	1 Week	2 <i>Due: Lab 5</i>
November	3	4	5 20: Inference About a Population Mean <i>Lab Assigned 7-Tests of Significance</i>	6	7 21: Comparing Two Means Written HW Due: Ch. 18	8	9 <i>Due: Lab 6</i>
	10	11	12 21: Comparing Two Means 27: ANOVA: Comparing Several Means <i>Lab Assigned 8-Cl's & Hypothesis Tests</i>	13	14 Lab Review and Catch Up Written HW Due: Ch. 20	15	16 <i>Due: Lab 7</i>
	17	18	19 27: ANOVA: Comparing Several Means <i>Lab Assigned 9-Two Sample HT's & ANOVA</i>	20	21 Review for Exam II Written HW Due: Ch. 21	22	23 <i>Due: Lab 8</i>
	24	25	26 Exam II	27	28 Thanksgiving Day	29	30
December	1	2	3 22: Inference About a Pop. Proportion 23: Comparing Two Proportions <i>Lab Assigned 10-HT's, Cl's, & χ^2 for Props.</i>	4	5 25: Two Categorical Variables: Chi-Square Test Written HW Due: Ch. 27	6	7 <i>Due: Lab 9</i>
	8	9	10 Review for the Final Exam	11	12 Lab Final Exam Written HW Due: Ch. 22 & 23	13	14 <i>Due: Lab 10</i>
	15	16 Final Exam	17 Monday 16-Dec-2024 7:30-10:00 AM Large Central Room at LSCC	18	19	20	21