

Syllabus



Department of Mathematical, Information and Computer Sciences

MTH2003—Introduction to Statistics

3 Units (MW, 1:00-2:15pm, Liberty Station 201)

Spring 2023 | January 10 - May 5

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Office hours: 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 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.

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. *The Basic Practice of Statistics*, 9th Edition by Moore, Notz and Fligner
2. Access to Achieve, available through the online access key
3. A cheap calculator other than your phone, tablet, 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 (see Canvas for download and installation instructions, need at least one):
 - Excel
 - R

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. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

ASSESSMENT AND GRADING

Graded Components

- **Weekly Classwork:** Attendance at the Wednesday in person class is required. In these class meetings, we will work on activities and problems. Some classwork may be graded, and some you will get full credit for just by attempting them.
- **Online Homework:** This homework will be completed in Achieve, available through the online access key. You will have multiple attempts to complete each problem. I suggest you start before Monday and use our homework class day for any problems you are having trouble solving.
- **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 attached schedule below. Late homework will not be accepted. A homework assignment is late if it is not submitted at the beginning of class on the due date. Your lowest homework score will be dropped prior to computing the final course grade.
- **Labs:** The labs are due at the scheduled dates and times, and are submitted ONLY in Word, Excel, or PDF format in Canvas. Late lab assignments will not be accepted. A lab assignment is late if it is not submitted at the beginning of class on the due date. Your lowest lab assignment score will be dropped prior to computing the final course grade.
- **Examinations and the Final Examination:** Examinations and the Final Examination will include problems and questions over material assigned in the textbook, 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. The examination schedule is included in the daily schedule.

Grading Distribution	Percent
Two Examinations (at 17.5% Each)	35
Final Exam	30
Lab Final Examination	3
Labs	12
Online Homework	10
Written Homework / Classwork	10
Total	100

FINAL EXAM:

Date and Time: Wednesday, May 3, 2023 in the Large Central Room at Liberty Station

The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

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 -100.0]	[82.5-87.5)	[72.5-77.5)	[62.5 -67.5)	[0-60)
-	[90.0-92.5)	[80.0-82.5)	[70.0-72.5)	[60.0-62.5)	

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 their physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

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. Incompletes will only be assigned in extremely unusual circumstances.

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.

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](#) for definitions of kinds of academic dishonesty and for further policy information.

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 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.

SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. 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 help and support are available through the Title IX Office at pointloma.edu/Title-IX. Please be aware that under Title IX of the Education Amendments of 1972, it is 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 or find a list of campus pastors at 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 drop date or, after that date, receive the appropriate grade for their work and participation. See [Academic Policies](#) for further information about class attendance.

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. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

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

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 require 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.

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 Spiritual Development](#) -



Week		Monday	Wednesday	Saturday
January	1	On Tuesday the 10 th (Monday Schedule) Introduction Ch. 1 & 2 Lab Assigned 0-Introduction Lab*	11 Reading 1: Picturing Distributions with Graphs 2: Describing Distributions with Numbers Open Lab Online HW Ch. 1 & 2 (1 st Try)	14 Purchase textbook (with Achieve access code) if you have not already done so. Load Statistics Software (Excel or R) Lab Due 0-Introduction Lab*
	2	16 Martin Luther King Jr. Day	18 Activities 1: Picturing Distributions with Graphs 2: Describing Distributions with Numbers Introduction Ch. 4, 5 & 6 HW Assigned Ch. 1 & 2 (Written) Lab Assigned 1-Summarizing Data	21 Online HW Due Ch. 1 & 2 (2 nd Try)
	3	23 Reading 4: Scatterplots and Correlation 5: Regression Analysis 6: Two-way Tables Open Lab Online HW Ch. 4, 5 & 6 (1 st Try)	25 Activities 4: Scatterplots and Correlation 5: Regression Analysis 6: Two-way Tables Introduction Ch. 8 & 9 HW Assigned Ch. 4, 5 & 6 Lab Assigned 2-Relationships Between Two Variables Written HW Due Ch. 1 & 2	28 Online HW Due Ch. 4, 5 & 6 (2 nd Try) Lab Due 1-Summarizing Data
	4	30 Reading 8: Producing Data: Sampling 9: Producing Data: Experiments Open Lab Online HW Ch. 8 & 9 (1 st Try)	1 Activities 8: Producing Data: Sampling 9: Producing Data: Experiments Introduction Ch. 3 HW Assigned Ch. 8 & 9 (Written) Lab Assigned 3-Gathering Data Written HW Due Ch. 4, 5 & 6	4 Online HW Due Ch. 8 & 9 (2 nd Try) Lab Due 2-Relationships Between Two Variables
February	5	6 Reading 3: The Normal Distribution Open Lab Online HW Ch. 3 (1 st Try)	8 Activities 3: The Normal Distribution Introduction Ch. 15 & 16 HW Assigned Ch. 3 Written HW Due Ch. 8 & 9	11 Online HW Due Ch. 3 (2 nd Try) Lab Due 3-Gathering Data
	6	13 Review for Exam I	15 Exam I Lab Assigned 4-Normal Distributions Written HW Due Ch. 3	18
	7	20 Reading 15: Sampling Distributions 16: Confidence Intervals: The Basics Open Lab Online HW Ch. 15 & 16 (1 st Try)	22 Activities 15: Sampling Distributions 16: Confidence Intervals: The Basics Introduction Ch. 17 & 18 HW Assigned Ch. 15 & 16 (Written) Lab Assigned 5-Sampling Distributions	25 Online HW Due Ch. 15 & 16 (2 nd Try) Lab Due 4-Normal Distributions

	8	27 Reading 17: Tests of Significance: The Basics 18: Inference in Practice Open Lab Online HW Ch. 17 & 18 (1 st Try)	1 Activities 17: Tests of Significance: The Basics 18: Inference in Practice Introduction HW Assigned Ch. 17 & 18 (Written) Lab Assigned 6-Confidence Intervals Written HW Due Ch. 15 & 16	4 Online HW Due Lab Due Ch. 17 & 18 (2 nd Try) 5-Sampling Distributions
March	9	6 Spring Break	8	11
	10	13 Reading 20: Inference About a Population Mean Open Lab Online HW Ch. 20 (1 st Try)	15 Activities 20: Inference About a Population Mean Introduction HW Assigned Ch. 20 (Written) Lab Assigned 7-Tests of Significance Written HW Due Ch. 17 & 18	18 Online HW Due Lab Due Ch. 20 (2 nd Try) 6-Confidence Intervals
	11	20 Reading 21: Comparing Two Means 27: One-Way Analysis of Variance Open Lab Online HW Ch. 21 & 27 (1 st Try)	22 Activities 21: Comparing Two Means 27: One-Way Analysis of Variance Introduction HW Assigned Ch. 21 & 27 (Written) Written HW Due Ch. 20	25 Online HW Due Lab Due Ch. 21 & 27 (2 nd Try) 7-Test of Significance
	12	27 Review for Exam II	29 Exam II Lab Assigned 8-Conf. Intervals & Hypothesis Tests Written HW Due Ch. 21 & 27	1
April	13	3 Reading 22: Inference About a Pop. Proportion 23: Comparing Two Proportions Open Lab Online HW Ch. 22 & 23 (1 st Try)	5 Open Lab	8 Easter Break
	14	10	12 Activities 22: Inference About a Pop. Proportion 23: Comparing Two Proportions Introduction HW Assigned Ch. 22 & 23 (Written) Lab Assigned 9-Two Sample Hyp. Tests & ANOVA	15 Online HW Due Lab Due Ch. 22 & 23 (2 nd Try) 8-Conf. Intervals & Hypothesis Tests
	15	17 Reading 25: The Chi-Square Test Open Lab Online HW Ch. 25 (1 st Try)	19 Activities 25: The Chi-Square Test HW Assigned Ch. 25 (Written) Lab Assigned 10-HT's, CI's, and Chi ² for Proportions Written HW Due Ch. 22 & 23	22 Online HW Due Lab Due Ch. 25 (2 nd Try) 9-Two Sample Hyp. Tests & ANOVA
	16	24 Review for Final Exam	26 Lab Final Exam Written HW Due Ch. 25	29 Lab Due 10-HT's, CI's, and Chi ² for Proportions
May	17	1	3 Final Exam 7:30am-10:00am in the Large Central Room	6

