POINT 19 02 LOMA
NAZARENE UNIVERSITY

MTH2003 (3 units) Introduction to Statistics

Instructor:

Sec 1 Th 2:30-3:45	Ryan Botts, Ph.D.	rbotts@pointloma.edu	619.849.2968
Sec 2 W 1:00-2:15	Bobby Compton, Ph.D.	bobbycompton@pointloma.edu	619.849.2219
Sec 3 F 1:00-2:15	Bobby Compton, Ph.D.	bobbycompton@pointloma.edu	619.849.2219
Sec 4 Th 4:00-5:15	Greg Crow, Ph.D.	gcrow@pointloma.edu	619.849.2604

- All sections will hold Zooms during these time slots, exam reviews may be during optional lab time on Tuesday for Sections 1 and 4, and on Monday for Sections 2 and 3.

Office Hours: posted in Canvas

Textbook: *The Basic Practice of Statistics,* 8th ed. by Moore, Notz and Fligner
Other Materials:
- A cheap calculator other than your phone, tablet, pad, or computer (with at least a square root key)
- Laptop or access to a computer with Java enabled in the web browser
- Statistical Software (there are many options for purchase locations, here are examples):
    - Excel
        - There are many websites selling many flavors of Excel. For instance you could search Google for "Buy Excel Home" and click the Shopping bar at the top of the page.
    - R
        - http://cran.r-project.org/bin/windows/base/ (free)
        - http://cran.r-project.org/bin/macosx/ (free)
    - SPSS
        - There are many websites selling many flavors of SPSS. For instance you could search Google for "Buy SPSS Base Grad pack" and click the Shopping bar at the top of the page.

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.

Prerequisites
Mathematics 099 (or equivalent).

Course Learning Outcomes
- Students will be able to apply their technical knowledge to solve problems.
- Students will be able to compute measures of central tendency for data.
- Students will be able to compute measures of dispersion for data.
- Students will be able to use statistical methods to test hypotheses.
- 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.

Grade components.
- **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).

- **Homework**: Homework will be completed in MyMathLab, available through the online access key.
- **Notes and Videos**: Each section will have videos to watch and you should take notes. Your notes will be submitted in Canvas to provide evidence you are keeping up.
- **Weekly Zooms (Participation):** Each week there is a scheduled Zoom to work on problems. We understand that in some cases you will not be able to attend, in this case, please watch the video of the session and submit at least one problem discussed during the Zoom in the Canvas discussion to have your attendance counted.
- **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.
- **Late work:** We understand that life happens, if you contact your instructor prior to the due date of the assignment you may be given one extension throughout the semester.
- 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.

Grading Distribution	Percent
Two Examinations at 17.5% each	35
Final Exam	30
Lab Final Examination	6
Labs	9
Homework	15
Video Notes	2.5
Zoom Attendance	2.5
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 Exam 1, Exam 2, or the Final Exam in order to pass the class. That is, a score of 60% must be achieved on one of the Exams, 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:

	A	B	C	D	F
+		[87.5, 90)	[77.5, 80)	[67.5, 70)	
	[92.5, 100]	[82.5, 87.5)	[72.5, 77.5)	[62.5, 67.5)	[0,60)
−	[90, 92.5)	[80, 82.5)	[70, 72.5)	[60, 62.5)	

Grading Scale in Percentages

Attendance 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. Here is the university's stated policy on attendance:

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 https://catalog.pointloma.edu/content.php?catoid=35&navoid=2136#Class_Attendance in the Undergraduate Academic Catalog.

If you miss 10% of the class, you will receive a warning. If you miss 20% of the class, you will be automatically de-enrolled.

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.

Academic Accommodations:
While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

Academic Honesty:
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 https://catalog.pointloma.edu/content.php?catoid=35&navoid=2136#Academic_Honesty for definitions of kinds of academic dishonesty and for further policy information.

Copyright Protected Materials

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.

Credit Hour
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 15 weeks. Specific details about how the class meets the credit hour requirements can be provided upon request.

Component	Total Hours
Video Notes & Activities (10 at 1 hr. each)	10
Exams	2.5
Final	2.5
Reading (10 at 2 hours each)	20
Labs (11 at 2.5 hr. each)	27.5
Homework (10 at 3 hours each)	30
Weekly Zoom (15 at 1.25 each)	18.75
Review Sessions and Intro (4 at 1.25 each)	5
Total	**116.25**

Point Loma Nazarene University Mission
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.

Final Exam: Friday
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.

Sec 1 (Th 2:30-3:45) and Sec 4 (Th 4:00-5:15)

M	T	W	Th	F
8/17/20	8/18/20	8/19/20	8/20/20	8/21/20
			Zoom Intro Intro Lab	Intro Lab Due
8/24/20	8/25/20	8/26/20	8/27/20	8/28/20
	Video Ch. 1: Picturing Data Video Ch. 2: Describing Data Video Notes 1 Due		Zoom Q and A	HW 1: Ch. 1 & 2 Due Lab 1 Due
8/31/20	9/1/20	9/2/20	9/3/20	9/4/20
	Video Ch. 4: Correlation Video Ch. 5: Regression Video Ch. 6: Two-way tables Video Notes 2 Due		Zoom Q and A	HW 2: Ch. 4, 5 & 6 Due Lab 2 Due
9/7/20	9/8/20	9/9/20	9/10/20	9/11/20
	Video Ch. 8: Gathering data Video Ch. 9: Experiments Video Notes 3 Due		Zoom Q and A	HW 3: Ch. 8 & 9 Due Lab 3 Due
9/14/20	9/15/20	9/16/20	9/17/20	9/18/20
	Video Ch. 3: Normal Distr. Video Notes 4 Due		Zoom Q and A	HW 4: Ch. 3 Due Lab 4 Due
9/21/20	9/22/20	9/23/20	9/24/20	9/25/20
	Zoom Review		Exam I	
9/28/20	9/29/20	9/30/20	10/1/20	10/2/20
	Video Ch. 15: Sampling Distr. Video Ch. 16: Intro. To Inf. Video Notes 5 Due		Zoom Q and A	HW 5: Ch. 15 & 16 Due Lab 5 Due
10/5/20	10/6/20	10/7/20	10/8/20	10/9/20
	Video Ch. 17: Hypothesis Tests Video Ch. 18: Inf in Practice Video Notes 6 Due		Zoom Q and A	HW 6: Ch. 17 & 18 Due Lab 6 Due
10/12/20	10/13/20	10/14/20	10/15/20	10/16/20
	Video Ch. 20 Part 1: Inf. About Means Video Ch. 20 Part II: Inf About Means Video Notes 7 Due		Zoom Q and A	HW 7: Ch. 20 Due Lab 7 Due
10/19/20	10/20/20	10/21/20	10/22/20	10/23/20
	Video Ch. 21 Part I: Comparing 2 means Video Ch. 21 Part II: Comparing 2 means Video Ch. 27: ANOVA Video Notes 8 Due		Zoom Q and A	HW 8 Ch. 21 & 27 Due Lab 8 Due
10/26/20	10/27/20	10/28/20	10/29/20	10/30/20

	Zoom Review		Exam II	
11/2/20	11/3/20	11/4/20	11/5/20	11/6/20
	Video Ch. 22: Inf. about a Proportion Video Ch. 23: Comparing 2 Proportions Video Notes 9 Due		Zoom Q and A	HW 9: Ch. 22 & 23 Due Lab 9 Due
11/9/20	11/10/20	11/11/20	11/12/20	11/13/20
	Video Ch. 25 Chi-square Video Notes 10 Due		Lab Final	HW 10: Ch. 25 Due Lab 10 Due
11/16/20	11/17/20	11/18/20	11/19/20	11/20/20
			Zoom Review	
11/23/20	11/24/20	11/25/20	11/26/20	11/27/20
			Thanksgiving Break	
11/30/20	12/1/20	12/2/20	12/3/20	12/4/20
				Final Exam 7:30-10:00 am

Sec 2 (W 1:00-2:15)

M	T	W	Th	F
8/17/20	8/18/20	8/19/20	8/20/20	8/21/20
		Zoom Intro Intro Lab		Intro Lab Due
8/24/20	8/25/20	8/26/20	8/27/20	8/28/20
	Video Ch. 1: Picturing Data Video Ch. 2: Describing Data Video Notes 1 Due	Zoom Q and A		HW 1: Ch. 1 & 2 Due Lab 1 Due
8/31/20	9/1/20	9/2/20	9/3/20	9/4/20
	Video Ch. 4: Correlation Video Ch. 5: Regression Video Ch. 6: Two-way tables Video Notes 2 Due	Zoom Q and A		HW 2: Ch. 4, 5 & 6 Due Lab 2 Due
9/7/20	9/8/20	9/9/20	9/10/20	9/11/20
	Video Ch. 8: Gathering data Video Ch. 9: Experiments Video Notes 3 Due	Zoom Q and A		HW 3: Ch. 8 & 9 Due Lab 3 Due
9/14/20	9/15/20	9/16/20	9/17/20	9/18/20
	Video Ch. 3: Normal Distr. Video Notes 4 Due	Zoom Q and A		HW 4: Ch. 3 Due Lab 4 Due
9/21/20	9/22/20	9/23/20	9/24/20	9/25/20
Zoom Review		**Exam I**		
9/28/20	9/29/20	9/30/20	10/1/20	10/2/20
	Video Ch. 15: Sampling Distr. Video Ch. 16: Intro. To Inf. Video Notes 5 Due	Zoom Q and A		HW 5: Ch. 15 & 16 Due Lab 5 Due
10/5/20	10/6/20	10/7/20	10/8/20	10/9/20
	Video Ch. 17: Hypothesis Tests Video Ch. 18: Inf in Practice Video Notes 6 Due	Zoom Q and A		HW 6: Ch. 17 & 18 Due Lab 6 Due
10/12/20	10/13/20	10/14/20	10/15/20	10/16/20
	Video Ch. 20 Part 1: Inf. About Means Video Ch. 20 Part II: Inf About Means Video Notes 7 Due	Zoom Q and A		HW 7: Ch. 20 Due Lab 7 Due
10/19/20	10/20/20	10/21/20	10/22/20	10/23/20
	Video Ch. 21 Part I: Comparing 2 means Video Ch. 21 Part II: Comparing 2 means Video Ch. 27: ANOVA Video Notes 8 Due	Zoom Q and A		HW 8 Ch. 21 & 27 Due Lab 8 Due
10/26/20	10/27/20	10/28/20	10/29/20	10/30/20

Zoom Review		**Exam II**		
11/2/20	11/3/20	11/4/20	11/5/20	11/6/20
	Video Ch. 22: Inf. about a Proportion Video Ch. 23: Comparing 2 Proportions Video Notes 9 Due	Zoom Q and A		HW 9: Ch. 22 & 23 Due Lab 9 Due
11/9/20	11/10/20	11/11/20	11/12/20	11/13/20
	Video Ch. 25 Chi-square Video Notes 10 Due	**Lab Final**		HW 10: Ch. 25 Due Lab 10 Due
11/16/20	11/17/20	11/18/20	11/19/20	11/20/20
		Review Zoom		
11/23/20	11/24/20	11/25/20	11/26/20	11/27/20
		Thanksgiving Break		
11/30/20	12/1/20	12/2/20	12/3/20	12/4/20
				Final Exam 7:30-10:00 am

Sec 3 (Th 1:00-2:15)

M	T	W	Th	F
8/17/20	8/18/20	8/19/20	8/20/20	8/21/20
				Zoom Intro Intro Lab Intro Lab Due
8/24/20	8/25/20	8/26/20	8/27/20	8/28/20
	Video Ch. 1: Picturing Data Video Ch. 2: Describing Data Video Notes 1 Due			Zoom Q and A HW 1: Ch. 1 & 2 Due Lab 1 Due
8/31/20	9/1/20	9/2/20	9/3/20	9/4/20
	Video Ch. 4: Correlation Video Ch. 5: Regression Video Ch. 6: Two-way tables Video Notes 2 Due			Zoom Q and A HW 2: Ch. 4, 5 & 6 Due Lab 2 Due
9/7/20	9/8/20	9/9/20	9/10/20	9/11/20
	Video Ch. 8: Gathering data Video Ch. 9: Experiments Video Notes 3 Due			Zoom Q and A HW 3: Ch. 8 & 9 Due Lab 3 Due
9/14/20	9/15/20	9/16/20	9/17/20	9/18/20
	Video Ch. 3: Normal Distr. Video Notes 4 Due			Zoom Q and A HW 4: Ch. 3 Due Lab 4 Due
9/21/20	9/22/20	9/23/20	9/24/20	9/25/20
Zoom Review			**Exam I**	
9/28/20	9/29/20	9/30/20	10/1/20	10/2/20
	Video Ch. 15: Sampling Distr. Video Ch. 16: Intro. To Inf. Video Notes 5 Due			Zoom Q and A HW 5: Ch. 15 & 16 Due Lab 5 Due
10/5/20	10/6/20	10/7/20	10/8/20	10/9/20
	Video Ch. 17: Hypothesis Tests Video Ch. 18: Inf in Practice Video Notes 6 Due			Zoom Q and A HW 6: Ch. 17 & 18 Due Lab 6 Due
10/12/20	10/13/20	10/14/20	10/15/20	10/16/20
	Video Ch. 20 Part 1: Inf. About Means Video Ch. 20 Part II: Inf About Means Video Notes 7 Due			Zoom Q and A HW 7: Ch. 20 Due Lab 7 Due
10/19/20	10/20/20	10/21/20	10/22/20	10/23/20
	Video Ch. 21 Part I: Comparing 2 means Video Ch. 21 Part II: Comparing 2 means Video Ch. 27: ANOVA Video Notes 8 Due			Zoom Q and A HW 8 Ch. 21 & 27 Due Lab 8 Due

10/26/20	10/27/20	10/28/20	10/29/20	10/30/20
Zoom Review				**Exam II**
11/2/20	11/3/20	11/4/20	11/5/20	11/6/20
	Video Ch. 22: Inf. about a Proportion Video Ch. 23: Comparing 2 Proportions Video Notes 9 Due			Zoom Q and A HW 9: Ch. 22 & 23 Due Lab 9 Due
11/9/20	11/10/20	11/11/20	11/12/20	11/13/20
	Video Ch. 25 Chi-square Video Notes 10 Due			**Lab Final** HW 10: Ch. 25 Due Lab 10 Due
11/16/20	11/17/20	11/18/20	11/19/20	11/20/20
				Review Zoom
11/23/20	11/24/20	11/25/20	11/26/20	11/27/20
		Thanksgiving Break		
11/30/20	12/1/20	12/2/20	12/3/20	12/4/20
				Final Exam 7:30-10:00 am