MTH363 (3 units)
Calculus Based Statistics with R

MWF 11:00-11:55 am T 105

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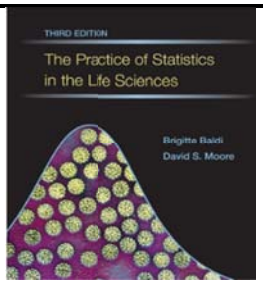
Office Hours: Posted in Canvas



Text Book: Baldi and Moore
The Practice of Statistics in the Life Sciences, 3rd Edition.
Statistical Software: R and RStudio installed on your device
Calculator: A scientific calculator is recommended

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.

Catalog Description:
MTH 363 (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 144 or MTH 164 or equivalent.

Learning Outcomes
- 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 make inferences from data.
- Students will be able to apply their technical knowledge to solve problems.

Course Format
Mathematics is learned by doing. This course has intentionally been designed to develop both statistical understanding and practical implementation. You are encouraged to work with each other, however, you are responsible for the material and simply copying answers will be to your detriment. You will be required to install the software (R and RStudio) on your own computer or use a computer lab copy during the assigned sessions.

Homework:
The homework is designed to allow you to grasp the concepts of Statistics; it is not an end in itself. Assignments will be announced on Monday, Wednesday and Friday. The work will be due on the following Friday. The problems from the text may be submitted as a hard copy or may be submitted by e-mail in Word, Excel, or .pdf format (but not in Google Docs). There may also be other activities that are completed as homework.

Late work will not be accepted without prior consent or a well-documented emergency. 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. Homework assignments that are submitted late without prior consent will be recorded with a score of zero. If more than half of the homework assignments are submitted on time, then the lowest homework score will be dropped from the calculations of the homework grade.

Collected assignments must be prepared in a style suitable for grading. The following guidelines are used to determine credit:

- the organization must be easy to follow
- the work must be legible
- complete solutions must be written for problems (not just answers);
- answers must be clearly marked
- use complete sentences to answer questions

Labs:
The labs will be posted in Canvas and are due at the scheduled times (by 11:59 pm on the Thursday prior to the next lab). Labs will be submitted only in Canvas in Word, Excel, or .pdf format (e.g. Google Docs and Apple Numbers are not permitted).

Examinations and the Final Examination:
There will be two Mid-Semester Examinations and a comprehensive Final Examination. 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.

Grade Components:

Grade Component	Percent
Two Examinations at 15% each	30
Final Exam	32
Lab Final Exam	8
Labs	15
Written Homework	15
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 these three 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:

Grading Scale in percentages	A	B	C	D
+		(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]
-	[90.0, 92.5)	[80.0, 82.5)	[70.0, 72.5)	[60.0, 62.5)

Attendance:
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 http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#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:
If you have a diagnosed disability, please contact PLNU's Disability Resource Center (DRC) within the first two weeks of class to demonstrate need and to register for accommodation by phone at 619-849-2486 or by e-mail at DRC@pointloma.edu. See Disability Resource Center for additional information. For more details see the PLNU catalog: http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#Academic_Accommodations

Students with learning disabilities who may need accommodations should discuss options with the instructor during the first two weeks of class.

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 http://catalog.pointloma.edu/content.php?catoid=24&navoid=1581#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.

Final Exam: 10:30 am-1:00 pm on Friday May 4th, 2018
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.

The Final Exam is a Comprehensive Examination.

	Sunday	Monday	Tuesday	Wednesday	Thurs.	Friday	Saturday
January		1	2	3	4	5	6
	7	8 New Student Orientation	9 Intro. (Monday)	10 Install *R, RStudio* Ch 1: Picturing Distributions	11	12 *Lab 1*	13
	14	15 **Martin Luther King Jr. Day** **(No Classes)**	16	17 Ch 2: Describing Distributions with Numbers	18	19 *Lab 1 - Open Lab*	20
	21	22 Ch 3: Scatterplots & Correlation	23	24 Ch 4: Regression	25	26 *Lab 2*	27
	28	29 Ch 5: Two-Way Tables **Spiritual Renewal Week**	30	31 Ch 7: Samples and Observational Studies	1	2 *Lab 2 - Open Lab*	3
February	4	5 Ch 8: Designing Experiments	6	7 Ch 9: Introducing Probability	8	9 *Lab 3*	10
	11	12 Ch 10: General Rules of Probability	13	14 Ch 11: Normal Distributions	15	16 *Lab 3 - Open Lab*	17
	18	19 Ch 14: Introduction to Inference	20	21 Ch 14: Introduction to Inference	22	23 *Lab 4*	24
	25	26 Ch 15: Inference in Practice	27	28 Catch Up & Review	1	2 **Exam 1**	3
March	4	5 **Spring**	6 ———	7 **Break**	8	9 **Week**	10
	11	12 Ch 15: Inference in Practice	13	14 Ch 17: Inference about a Population Mean	15	16 *Lab 4* *Open Lab*	17
	18	19 Ch 18: Comparing Two Means	20	21 Ch 24 One-Way Analysis of Variance	22	23 *Lab 5*	24
	25	26 Ch 19: Inference about a Population Proportion	27	28 *Lab 5 - Open Lab*	29 Easter Recess	30 Easter Recess	31
April	1 **Easter**	2 Easter Recess	3	4 Ch 19: Inference about a Population Proportion	5	6 *Lab 6*	7
	8	9 Catch Up & Review	10	11 **Exam 2**	12	13 *Lab 6 - Open Lab*	14
	15	16 Ch 20: Comparing Two Proportions	17	18 Ch 21: Chi-Square Test	19	20 *Lab 7*	21
	22	23 Ch 21: Chi-Square Test	24	25 Review	26	27 **Lab Final Exam**	28
	29	30	1	2	3	4 **Final Exam** **10:30 am – 1 pm**	5