Point Loma Nazarene University
SAN DIEGO, CALIFORNIA

Syllabus Mathematical Statistics — Spring 2012
MWF 11:00-12:05 (Quad I)

Rohr Science 220 – (619) 849-2604 – gcrow@ptloma.edu

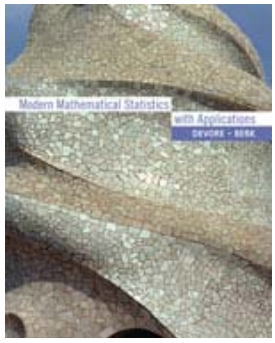
Instructor:
Greg Crow, Ph.D.

Class meetings:
11:00-12:05 MWF

Office hours: Rohr Science 220

Texts:
Modern Mathematical Statistics with Applications Jay L. Devore & Kenneth N. Berk– Thomsons Brooks/Cole 2008

The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century David Salsburg– W.H. Freeman/Owl Books 2001



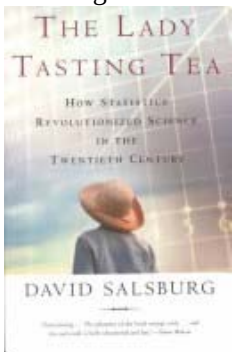


Table of Contents:

Course Description

MTH 382 (2) Mathematical Statistics

A first course in descriptive and infernetial statistics for students with sophisticated mathematics exposure. Topics include applied work in experimental design, sampling distributions, point estimation and hypothesis testing supported by the use of statistical software. In addition, the theoretical basis for these techniques is explored.
Prerequisite: Mathematics 274

Course Learning Objectives
Students will be able to apply their mathematical knowledge to solve problems.
Students will be able to use technology to solve problems.
Students will collaborate effectively in teams.

Required Materials

- Calculator: A scientific calculator is recommended (in the $15 to $25 range).

Comment

We will try and avoid the following pitfall:

At the beginning college level, visualization is a big part of understanding. Consequently, students who are operating with few mental pictures are not really learning mathematics. Their calculus consists of a vast series of algorithms and a complicated cataloging system which tells them which procedure is used when. The effort put into this kind of teaching and learning is largely wasted: memorized algorithms are soon forgotten and, worse still, **such courses perpetuate the idea that math involves doing calculations rather than thinking** [emphasis added].

(by Deborah Hughes Hallet in *Visualization and Calculus Reform*, in the collection *Visualization in Teaching and Learning Mathematics*, edited by Zimmerman and Cunningham (MAA notes \#19))

Examinations
There will one Mid-Quad Exam. There will be a Final Exam. The Final Exam will consist of a take-home portion and and in-class portion. The take-home portion will include essay questions and Maple, Excel, or SPSS lab work. Neither examination shall be missed without an official excuse. A deduction of 2^(n-1)*10% will be deducted for each hour "n" that the final exam is late (n=1 if the exam is turned in one hour after it is due).

GRADING POLICIES

Grading Distribution

Essays	100 points
Homework	200 points
Mid-Quad Exam	300 points
Final Exam	400 points
Total	1000 points

Grading scale. Grades are based on the number of points accumulated throughout the course.
Approximate minimal percentages required to obtain a given grade are:

Grading Scale in percentages

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

Other factors that affect grades are

- **Questions on written assignments, quizzes, and exams:** Written assignments and test/exam questions and problems must be formulated carefully in terms of words and symbols used in the course. Credit is determined by the degree to which answers and solutions respond to the specific question or problem stated. Maximize your credit by learning the language and symbols of the course.
- **Written Assignments**. Assignments collected 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
- **Exams and Final Examination**. Exams and the final exam will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class.

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.

Regular and punctual attendance at all classes in which a student is registered is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements to be met. There are no allowed or excused absences except when absences are necessitated by certain university-sponsored activities and are approved in writing by the Provost. Whenever the number of accumulated absences in a class, for any cause, exceeds ten percent of the total number of class meetings, the faculty member has the option of filing a written report to the Vice Provost for Academic Administration which may result in de-enrollment, pending any resolution of the excessive absences between the faculty member and the student…If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF (no grade). There are no refunds for courses where a de-enrollment was processed." (see catalog for full text)

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 academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the university in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities (ADA) Act of 1990, and ADA Amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

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

Academic Honesty
The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Academic honesty and integrity are strong values among faculty and students alike. Any violation of the university's commitment is a serious affront to the very nature of Point Loma's mission and purpose.

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. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. For more details on PLNU's policy go to: http://www.pointloma.edu/experience/academics/catalogs/undergraduate-catalog/point-loma-education/academic-policies

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty.

Classroom Attire .
All students are expected to dress in ways that make the classroom a place where all students are comfortable and can work efficiently. Distracting attire is not permitted in the classroom. For example, attire associated with the "rush" activities of fraternities and sororities simply causes too many distractions in the classroom. If you choose to "rush" one of the fraternities or sororities, please make sure the "rush" officials know that "rush" attire will not be allowed in this classroom.

Final Exam: Date and Time is a Comprehensive Examination.

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. 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 change the exam date and time for that particular student.

To Point Loma Nazarene University

Last modified on 10-Jan-2012
Send comments and suggestions to ***E-mail:*** *gcrow@pointloma.edu*

Point Loma Nazarene University
SAN DIEGO, CALIFORNIA

Schedule for Mathematical Statistics — Spring 2012
11:00-12:05 MWF (Quad I)

	Mon	Tue	Wed	Thu	Fri
January	9 Sections 1.1 and 1.2 Populations and Samples Pictorial and Tabular Methods in Descriptive Statistics	10 <——	11 Sections 1.3 and 1.4 Measures of Location Measures of Variability	12	13 Sections 2.1 and 3.1 Samples Spaces and Events Random Variables
	16 **Martin Luther King Jr. Day**	17	18 Section 4.3 The Normal Distribution	19	20 Section 6.1 Statistics and Their Distributions
	23 Section 6.2 The Distribution of the Sample Mean	24	25 Sections 7.1 and 7.2 General Concepts Methods of Point Estimation	26	27 Section 8.1 Basic Properties of Confidence Intervals
	30 Section 8.2 Large-Sample Confidence Intervals for a Population Mean and Proportion	31	1 Section 8.3 Intervals Based on a Normal Population Distribution Review	2	3 **Exam 1**
February	6 Sections 9.1 and 9.2 Hypothesis and Test Procedures Tests About a Population Mean	7	8 Section 9.3 Tests Concerning a Population Proportion	9	10 Sections 9.4 and 9.5 *P*-Values Some Comments on Selecting a Test Procedure
	13 Sections 10.1 and 10.2 z Tests and Confidence Intervals for a Difference Between Two Population Means The Two-Sample *t* Test and Confidence Intervals	14	15 Sections 10.3 and 10.4 Analysis of Paired Data Inferences About Two Population Proportions	16	17 Sections 11.1 and 11.2 Single-Factor ANOVA Multiple Comarisons in ANOVA
	20 **Department Chapel** Sections 12.5 and 12.1 Correlation The Simple Linear and Logistic Regressions Models Take-Home Final Distributed	21	22 Sections 12.2 and 12.3 Estimating Model Parameters Inferences About Regression Coefficient *B*1	23	24 General Comments on Control Charts Control Charts for Process Location
	27 **Take-Home Final Due** **In Class Final Exam**	28	29	1	2

To Point Loma Nazarene University

Last modified on 11-Jan-12
Send comments and suggestions to ***E-mail:*** *gcrow@pointloma.edu*