MTH203 Introduction to Statistics

Sec 1: W	**10:55-12:10**	**Help Lab: M**	**10:55-12:10**	**LBRT 203**
Sec 2: F	**10:55-12:10**	**Help Lab: M**	**10:55-12:10**	**LBRT 203**
Sec 3: Th	**9:00-10:15**	**Help Lab: T**	**9:00-10:15**	**LBRT 201**
Sec 4: Th	**10:30-11:45**	**Help Lab: T**	**10:30-11:45**	**LBRT 201**

Instructors:

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Online Materials:

Statistical Reasoning from Acrobatiq.com (Through Canvas, $50)

Statistical Software:
SPSS , Excel, or R

Text:

Introduction to Statistics: Think & Do v4.1 by Scott Stevens
ISBN-10: 0-9885572-2-3
ISBN-13: 978-0-9885572-2-2
(Paper, $29.95) In the Bookstore
(Digital, $9.95) On the web:
www.centerofmath.org/**statistics**.html

Course Description
MTH 203 (3 Units) Introduction to Statistics

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 099 (or equivalent).

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.

Required Materials
- Calculator: A cheap calculator (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 some examples):
  - SPSS (All nursing and psychology majors must use this option)
    - http://studentdiscounts.com/ibmspss22basedownloadgradpack.aspx ($75 12 Months)
    - http://estore.onthehub.com/WebStore/OfferingDetails.aspx?o=b326a469-0005-e311-93f3-b8ca3a5db7a1 ($43 6 Months)
  - Excel
    - http://www.mychoicesoftware.com/products/065-07648/microsoft-excel-2013-download-license-home-use-non-commercial ($66)
    - http://www.amazon.com Office Home & Student 2013 ($105)
  - R
    - http://cran.r-project.org/bin/windows/base/ (Free)
    - http://cran.r-project.org/bin/macosx/ (Free)

Course Format
Mathematics is learned by doing. This course has intentionally been designed in a hybrid format so that more class time can be spent doing mathematics. A significant portion of the course (~30%) will be completed online either in the open working sessions or on your own. This allows for more self-paced work. You are encouraged to work with each other, however, you are responsible for the material and simply copying answers will be to your detriment. This course also aims to introduce the statistical computing packages, including SPSS, R, or Excel, as a problem solving tool. Thus you will be required to install the software on your own computer and bring it to class during the assigned sessions.

Grade components.

- **Online Checkpoints and Modules:** You will be working in the online course materials provided by Acrobatiq®. Prior to our in class activities you will be required to complete the module assigned checkpoints. You will have two attempts on the checkpoints and the best score will be recorded. A checkpoint will not count if it is not completed by the due date.
- **Labs and Online Learn By Doing:** The labs and Learn by Doing's will be submitted in Acrobatiq® and are due at the scheduled times, usually the end of the week of the lab.
- **Homework**: Written problems are assigned out of the textbook and due the first day of class following the in class activity on the Module. There may also be some activities that are completed as homework.

  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

- **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.

Grading Distribution	Percent
Two Examinations at 20% each	40
Final Exam	30
Labs	10
Homework (text exercises)	10
Online Assignments	10
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:

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)

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 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)

Because this course is a hybrid course, here is how attendance will be calculated:

> Face to face portion of the class: You must be present on time for the full class for you to be considered present in the face to face meeting.
>
> Online portion of the class: You are expected to work on material online every week. In order to get credit for being "present" in the online portion of the class each week you must complete at least one online homework assignment or exam review assignment (for test weeks) before the due date/time for that week.

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.

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.

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 accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation during the first two weeks of the semester with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files the 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, and the Americans with Disabilities Act of 1990 (ADA), 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 in need of academic accommodations as defined by the laws listed above, must discuss options with the professor within the first two weeks of class, and must complete the documentation process with the DRC within the first four 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.

Final Exam: Date and Time
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.

The Final Exam is a Comprehensive Examination.

Section 1: In class meetings are on Wednesday from 10:55-12:10.

Week Start Date	Prior to Class Online *Modules*	Online *Checkpoints*	In class Activities *By Module*	After Class Homework from the Book *Summary Worksheet (SW) Problem Set Questions (PS)*
1 9/3/2014	None	None	Introduction 1, 2, 3: Read	Load Statistical Software on Your Laptop
2 9/10/2014	4: Examining Distributions	26, 40	4: Activities 5: Introduction	SW 2: 1, 3 P29 PS 2: 3, 17 P31
3 9/17/2014	5, 7: Examining Relationships, Sampling	54, 71, 79	5, 7: Activities	PS 10: 1, 2(a-f), 3, 4 P185 PS 1: 1, 2, 3, 4 P14 Regression Activity
4 9/24/2014	8, 10: Designing Studies, Probabilities	89, 94	8, 10: Activities Introduction to Random Variables and z *Lab 1 Summarizing Data **	PS 1: 9, 10 P14 SW 4: 1 P62 PS 4: 1, 2 P64
5 10/1/2014	11: Random Variables	123	11: Activities	PS 6: 1, 2, 3, 5, 6 P100 PS 3: 1(b-d), 7, 8, 9 P45
6 10/8/2014	**Exam 1**			
7 10/15/2014	12: Sampling Distributions	128, 132	12: Activity 14, 15, & 16: Introduction	
8 10/22/2014	14, 15, 16: Intro. to Inference, C.I.'s	155	14, 15, & 16: Activities 17: Introduction	PS 7: 1(a-e), 2, 3, 5, 6, 7 P121
9 10/29/2014	17: Hypothesis Testing	175, 184, 185, 187	17: Activity	SW 8: 1, 4, 7, 8, 9 P144 PS 8: 7, 8, 11, 17, 18b, 25 P147
10 11/5/2014	18: Inference for Relationships (C-Q)	200, 209, 217, 218	18: Activity	PS 9: 5a, 6 P167
11 11/12/2014			*Lab 2 Hypothesis Tests and Confidence Intervals**	
12 11/19/2014	**Exam 2**			
13 12/3/2014	19: Inference for Relationships (C-C)	228	19: Chi-squared	Lab Final Project Assigned
14 12/10/2014	*Lab 3: Regression and Scatterplots ** *Lab 4 Chi-squared **			
15 Final	**Sec 1 Final Friday 12/19 10:30-1:00**			

* Laptops with statistics software required

Section 2: In class meetings are on Friday from 10:55-12:10, and Monday 11/24.

Week Start Date	Prior to Class Online *Modules*	Online *Checkpoints*	In class Activities *By Module*	After Class Homework from the Book *Summary Worksheet (SW) Problem Set Questions (PS)*
1 9/5/2014	None	None	Introduction 1, 2, 3: Read	Load Statistical Software on Your Laptop
2 9/12/2014	4: Examining Distributions	26, 40	4: Activities 5: Introduction	SW 2: 1, 3 P29 PS 2: 3, 17 P31
3 9/19/2014	5, 7: Examining Relationships, Sampling	54, 71, 79	5, 7: Activities	PS 10: 1, 2(a-f), 3, 4 P185 PS 1: 1, 2, 3, 4 P14 Regression Activity
4 9/26/2014	8, 10: Designing Studies, Probabilities	89, 94	8, 10: Activities Introduction to Random Variables and z *Lab 1 Summarizing Data **	PS 1: 9, 10 P14 SW 4: 1 P62 PS 4: 1, 2 P64
5 10/3/2014	11: Random Variables	123	11: Activities	PS 6: 1, 2, 3, 5, 6 P100 PS 3: 1(b-d), 7, 8, 9 P45
6 10/10/2014	**Exam 1**			
7 10/17/2014	12: Sampling Distributions	128, 132	12: Activity 14, 15, & 16: Introduction	
8 10/31/2014	14, 15, 16: Intro. to Inference, C.I.'s	155	14, 15, & 16: Activities 17: Introduction	PS 7: 1(a-e), 2, 3, 5, 6, 7 P121
9 11/7/2014	17: Hypothesis Testing	175, 184, 185, 187	17: Activity	SW 8: 1, 4, 7, 8, 9 P144 PS 8: 7, 8, 11, 17, 18b, 25 P147
10 11/14/2014	18: Inference for Relationships (C-Q)	200, 209, 217, 218	18: Activity	PS 9: 5a, 6 P167
11 11/21/2014	**Exam 2**			
12 11/24/2014	* Note this is a Monday Session		*Lab 2 Hypothesis Tests and Confidence Intervals** Inference Practice	
13 12/5/2014	19: Inference for Relationships (C-C)	228	19: Chi-squared	Lab Final Project Assigned
14 12/12/2014	*Lab 3: Regression and Scatterplots ** *Lab 4 Chi-squared **			
15 Final	**Sec 2 Final Friday 12/19 10:30-1:00**			

* Laptops with statistics software required

Section 3: In class meetings are on Thursday from 9:00-10:15.
Section 4: In class meetings are on Thursday from 10:30-11:45.

Week Start Date	Prior to Class Online *Modules*	Online *Checkpoints*	In class Activities *By Module*	After Class Homework from the Book *Summary Worksheet (SW) Problem Set Questions (PS)*
1 9/4/2014	None	None	Introduction 1, 2, 3: Read	Load Statistical Software on Your Laptop
2 9/11/2014	4: Examining Distributions	26, 40	4: Activities 5: Introduction	SW 2: 1, 3 P29 PS 2: 3, 17 P31
3 9/18/2014	5, 7: Examining Relationships, Sampling	54, 71, 79	5, 7: Activities	PS 10: 1, 2(a-f), 3, 4 P185 PS 1: 1, 2, 3, 4 P14 Regression Activity
4 9/25/2014	8, 10: Designing Studies, Probabilities	89, 94	8, 10: Activities Introduction to Random Variables and z *Lab 1 Summarizing Data **	PS 1: 9, 10 P14 SW 4: 1 P62 PS 4: 1, 2 P64
5 10/2/2014	11: Random Variables	123	11: Activities	PS 6: 1, 2, 3, 5, 6 P100 PS 3: 1(b-d), 7, 8, 9 P45
6 10/9/2014	**Exam 1**			
7 10/16/2014	12: Sampling Distributions	128, 132	12: Activity 14, 15, & 16: Introduction	
8 10/23/2014	14, 15, 16: Intro. to Inference, C.I.'s	155	14, 15, & 16: Activities 17: Introduction	PS 7: 1(a-e), 2, 3, 5, 6, 7 P121
9 10/30/2014	17: Hypothesis Testing	175, 184, 185, 187	17: Activity	SW 8: 1, 4, 7, 8, 9 P144 PS 8: 7, 8, 11, 17, 18b, 25 P147
10 11/6/2014	18: Inference for Relationships (C-Q)	200, 209, 217, 218	18: Activity	PS 9: 5a, 6 P167
11 11/13/2014			*Lab 2 Hypothesis Tests and Confidence Intervals**	
12 11/20/2014	**Exam 2**			
13 12/4/2014	19: Inference for Relationships (C-C only)	228	19: Chi-squared	Lab Final Project Assigned
14 12/11/2014	*Lab 3: Regression and Scatterplots ** *Lab 4 Chi-squared **			
15 Final	**Sec 3 Final Thursday 12/18 10:30-1:00** **Sec 4 Final Tuesday 12/16 10:30-1:00**			

* Laptops with statistics software required