

## MTH203-1 Introduction to Statistics Quad 1

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Text: *Introduction to Statistics, Think and Do.*  
Scott Stevens ISBN-10: 0-9885572-2-3 (Digital,  
\$9.95)

Online Materials: Acrobatiq.com (Through  
Canvas, \$25)

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### 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
- SPSS will be provided in the computer labs

### 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 package SPSS as a problem solving tool. Thus there will also be several sessions that will take place in the computer lab.

### 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                   | 25      |
| Labs                         | 15      |
| 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 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**

After you miss the equivalent of 10% of the classes and labs, you will be warned of impending de-enrollment. If you miss the equivalent of 20% of the classes, you may be de-enrolled or given a course grade of "F" for the semester. Tardiness may result in being marked absent.

Attendance is expected at each class section. In the event of an absence you are responsible for the material covered in class and the assignments given that day. See the Point Loma Nazarene University Catalog for a statement of the university's policy with respect to 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 the 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.

### **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. Note that Attendance is Required on Activity, Lab and Exam Days.**

| Week and Start Date      | Prior to Class Online  | Prior to Class Online Assignments                       | In class  | After Class Homework (book)  |
|--------------------------|--|---|---|--|
| 1<br>5/12/2014           | Intro  |   |   |  |
| 2<br>5/13/2-14           | Module 1: Examining Distributions  | Cpt 1-2 P. 21 and 33                                    | Mod 1 Activities<br>Mod 2 Intro                                     | Ch 2 Summary 1 and 3<br>Problem Set 1-3,17                         |
| 3<br>5/14/2014           | Module 2: Examining Relationships<br>Module 3: Sampling  | Cpt 1-2 P. 47 and 61<br>Cpt P. 68                       | Mod 2 and 3 Activities  | Ch 10 Problem Set 1-4<br>Ch 1 Problem Set 1-4<br>3 studies Example |
| 4<br>5/19/2014           | Module 4: Designing Studies<br>Module 5: Probabilities   | Cpt 1-2 P. 78 and 83                                    | Mod 4 and 5 Activities<br>Intro to Random Variables and z           | Ch 1 Problem Set 9-10<br>Ch 4 Summary 1 and P.S. 1,2               |
| 5<br>5/20/2014           | Module 6: Random Variables   | Cpt P. 110  | Mod 6 Activities  | Ch 6 P.S. 1-6<br>Ch 3 P.S. 1-4,7,8                                 |
| 6<br>5/21/2014           | Lab 1 Summarizing Data<br><b>Exam 1</b>  |   |   |  |
| 7<br>5/27/2014           | Module 7: Sampling Distributions   | Cpts 1-2 P. 116 & 120                                   | Mod 7 Activity<br>Mod 9 Introduction                                |  |
| 8<br>5/28/2014           | Module 8: Intro to Inference<br>Module 9 part 1: Confidence intervals for pop means (Through P138) | No Cpt  | Mod 8 Activity<br>Mod 9 Activity                                    | Ch 7 P.S. 1,2,3  |
| 9<br>5/29/2014 (Thurs)   | Module 9 part 2: (Estimation) Confidence intervals for Pop proportions                             | Cpt P. 142  | Mod 9 Activity<br>Mod 10 Introduction                               | Ch 7 P.S. 5,6,7  |
| 10<br>6/2/2014           | Module 10 :Hypothesis Testing  | Cpt Overview P.149<br>Cpt HT P.162<br>Cpt Summary P.172 | Mod 10 Activity   | Ch 8 Summary 7-9 PS 7,8 11,12,13                                   |
| 11<br>6/3/2014           | Module 11 P1 & 2: (Inference for relationships) Through P 193                                      | Cpt I Samples P. 185<br>Cpt M. Pairs P.193              | Mod 11 Activity<br>Intro to ANOVA                                   | Ch 9 Problem Set 5a,6,8  |
| 12<br>6/4/2014           | Lab 2: Hypothesis Tests and Confidence Intervals<br><b>Exam 2</b>                                  |   |   |  |
| 13<br>6/9/2014           | Lab 3: Regression and Scatterplots   |   |   |  |
| 14<br>6/10/2014          | Module 11 part 3 ANOVA<br>Module 12: Inference for relationships                                   | Cpt ANOVA P. 201<br>Cpt. 1 P. 210<br>Cpt. 2 P. 211      | Mod 11 ANOVA activity<br>Mod 12 Chi-squared and Regression activity | Lab 4  |
| 15<br>Final<br>6/11/2014 | <b>Wed 6/11/2014</b>   |   |   |  |