**STATISTICS 233**

**INTRODUCTION TO STATISTICS**

**Spring 2017**

**MWF 9:15-10:20**

Anna Leon-Guerrero, Ph.D. Office Hours:

# Department of Sociology and Social Work M 10:30-2, W/F 10:30 -12

Xavier 242 and by appointment

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***There are three kinds of lies - lies, damned lies, and statistics.***

**COURSE DESCRIPTION**

 This course is an introduction to statistical methods. Statistical topics and techniques covered during this semester include: descriptive statistics, measures of central tendency and variability, probability, statistical inference and hypothesis testing, parametric and nonparametric testing and multivariate techniques (partial correlation and multiple regression).

 Throughout this course, social statistics is treated as a tool for research -- investigating and explaining the relationships between a set of variables. Conceptual and practical approaches to statistics will be emphasized. Class lectures and course exercises will focus on research issues and studies within sociology and social work practice. *A minimal understanding of elementary algebra is necessary.*

 Pencil and paper and hand held calculator problems dominate the work in this course. However, a laboratory component will also be included, relying on SPSS (Statistical Package for the Social Sciences) software. Lab assignments will incrementally build a set of basic skills necessary to program and interpret statistical analyses.

This course may be used to satisfy PLU’s Mathematical Reasoning (MR) general university requirement or the College of Arts and Sciences requirement (Option III).

This course meets the statistics requirement for Sociology and Social Work majors.

**LEARNING OBJECTIVES**

Upon successful completion of the course requirements, you will:

* become familiar with the basic concepts, methods and procedures of statistical analysis in the social sciences, as well as the logic underlying those procedures;
* acquire statistical literacy (to be able to explain the differences among various statistical techniques and identify an appropriate technique for a given set of variables and research questions);
* obtain hands-on experience with data programming (SPSS) and analyses; and,
* learn how to apply your knowledge of statistics in thinking critically about scholarly research and popular press reports of data and research.

# TEXTS AND READINGS

There is one required text:

Frankfort-Nachmias, Chava and Anna Leon-Guerrero. 2018 *Social Statistics for A Diverse Society* (8e). Thousand Oaks, CA: Sage Publications, Inc.

Additional readings will be assigned throughout the semester.

**GENERAL INFORMATION**

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| **Instructor reserves the right to modify course requirements and schedule. You are responsible, not only for the deadlines and course work specified in the syllabus, but also for any changes announced in class. This statement has been prepared so that you understand course requirements as well as the learning that will take place this semester. Read it carefully. Mark the important parts. Ask questions about any parts that are unclear to you. Refer back to the syllabus when you have questions later in the semester.** |

**ABOUT THIS COURSE**

**Attendance.** A course of this nature requires your consistent attendance if an effective learning experience is to be gained by you and your classmates. It is crucial that everyone keeps up with the chapters and take the time to work/rework problems discussed in class.

I expect you to be on time and to remain for the entire class. Attendance will be taken at each class and lab. After (3) absences, your final grade will be reduced by a 1/3 (i.e. B+ to a B). In case of emergencies or extended absences, you will need to inform me of your situation and we will discuss whether you can successfully complete the class. If a situation requires you to leave before the end of class, please let me know.

**Scheduled Days and Times**. In order to pass this course, you must complete examinations at the scheduled times and complete all assigned work on the required/assigned days and times. Your attendance is expected in class and during scheduled lab times.

**Class materials and notes.** The course schedule, your lecture and lab notes serve as your study guides. You are responsible for maintaining a comprehensive record of your lecture notes, lab exercises, and graded exams + cheat sheets.

**Use of technology in the classroom.** All electronic devices should be turned off during the class (and removed from your desktop and lap). In case there is an emergency situation and your phone needs to be on, please inform me at the beginning of class. I reserve the right to confiscate your cell phone for the remainder of the class if it rings or buzzes or if you are caught text messaging during our class time.

**Academic Integrity Policy.**  Throughout the semester, I encourage you to work with your classmates on your lab assignments, as well as in preparation for tests. However, any submitted work should be your own. I will not accept duplicate lab assignments. Checking out your neighbor’s work during test taking periods will not be tolerated.

The university expects that students will not cheat or plagiarize, and that they will not condone these behaviors or assist others who cheat or plagiarize. Academic misconduct not only jeopardizes the career of the individual student involved, but also undermines the scholastic achievements of all PLU students and attacks the mission of this institution. Students are inherently responsible to do their own work, thereby insuring the integrity of their academic records. I will be following the academic honesty policy described in the *PLU Student Handbook* and will enforce this policy to the full extent, if necessary. Any deviations from these principles (including plagiarism, intended or not) will result in severe penalties, including a failing grade on the assignment and/or the course.

**Grade Dispute Policy.**The College of Arts and Sciences grade dispute policy can be found at: http://www.plu.edu/social-sciences/documents-forms/documents/Grade%20Dispute%20Policy.pdf.

**Weather.** Check the university’s website or the hotline (535-7100) after 6 a.m. for information on class cancellations or delays.

**Course Accommodations.** If you need course adaptations or accommodations because of a disability or if you have emergency medical information to share with me, please speak with me as soon as possible. If you have questions concerning the services available for students with disabilities contact the Office of Disability Support Services (DSS) at ext. 7206. Adaptations or accommodations will be given only to students registered with DSS.

**STUDENT LEARNING OPPORTUNITIES**

**ALL requirements must be completed during the semester. If one requirement (e.g. a lab assignment) is not completed, you will automatically earn an “E” for the course regardless of your total semester points. Due dates for your lab assignments and presentation, along with test dates, are identified in the attached class schedule. The last day I will accept late work is Friday, May 17 by 12 p.m.**

Tests A-B-C-D (40 points each) 160

Lab Assignments 1-3 60

Lab Assignment 4 – Data Project 40

Lab Assignment 4 – Presentation 20

Final 120

TOTAL 400

400-360 A 319-280 C 239 and below F

359-320 B 279-240 D

Tests A-B-C-D and Final (280 points total)

There are five scheduled tests during the semester. The four highest test scores will be used in calculating your total points; the lowest semester test score will be dropped. The final exam is required. For all tests and the final, you may use a cheat sheet – a one sided, one-dimensional 8.5 x 11 sheet of your own creation (details will be discussed in class). Statistical appendices will be provided for all tests. Bring your calculator and pencils/pens to each test and final.

**What happens if I miss a class?** Do not make an appointment expecting me to cover the class material in 15 minutes (I will not repeat my lecture). And don’t ask if you missed anything important (you already know what my answer is). Get copies of notes from someone in class, go over the notes and review the chapter, and then make an appointment with me to discuss any questions you might have.

**What happens if I miss a lab?** You will have to make up your lab time on your own. This means attending lab on another day and/or speaking with a classmate or me if you need to review what we covered in the lab. Your lab write up is still due on the day noted on the assignment/syllabus. SPSS is available on several computers in the library.

**What happens if I miss a test or an assignment deadline?** I’ll allow early or make-up examinations only under the most exceptional of circumstances, usually with PRIOR notification and arrangement confirmed in writing.

All assignments are due at the beginning of class on the due date (either in class or in your drop box). Any late work, including work turned in after class on the same day that it is due, is subject to penalties.

Students are responsible for managing their own electronic documents. Computer mishaps or thumb drive failures do happen, but are not sufficient reasons to waive late penalties. Back up your files.

Lab Assignments 1-3 (20 points each = 60 points total)

Your lab assignments are posted on Sakai in the folder marked “Lab Materials”. The due date for each lab is identified on your assignment and on the course schedule.

Lab assignments should be typed. Early labs will be accepted and most will be due via your drop box in Sakai. Points will be deducted for late assignments (2 points per day/maximum deduction/lab: 10 points).

Though you may be working with others on the lab assignment, your lab statement should reflect your interpretation and understanding of the data. Most assignments are designed so that you can complete your work within one lab period.

Lab Assignment 4 – Data Project (40 points) + Presentation (20 points)

During this semester our class will conduct a survey project. Your work will include survey construction, data collection, data entry and analysis. The class dataset will serve as the basis for your final lab assignment – an opportunity for you to apply and demonstrate your learning. This assignment may be modified depending on the results of the survey. Points will be deducted for late assignments (4 points per day/maximum deduction: 20 points).

Group presentations will be scheduled during the last week of class. Presentation requirements will be discussed in class.

**ODDS AND ENDS**

* For every class meeting, bring your textbook and calculator. For each lab meeting, bring your text, your class notes and calculator.
* If your primary email account is a non-PLU address, make sure to forward your PLU email to your non-PLU account. Routinely check Sakai and your email for course announcements.

Many of the comments that follow are based on my own learning experiences as a student of statistics at the undergraduate and graduate level. Trust me, I have learned the hard way. Perhaps some of this advice will prevent you from making the same mistakes.

➀ Keep up with the course material, readings and end of chapter exercises from the BEGINNING of the semester. Good students will create a system of reviewing class notes with the text and will work/rework computational exercises.

➁ When you are unable to attend class, you should collect copies of notes from at least two of your colleagues. Good students will make sure they have a complete set of notes, highlighting the important concepts and formulas covered in class.

➂ Ask questions. Good students will ask questions. Odds are if you have a question, the person sitting next to you may have the same one in mind.

➃ Study group or studying alone? This is really up to you (and your own learning preference). I usually studied alone. I found that I learned material one way (1-2-3), while my colleagues would process the same materials differently (A-B-C) and studying with them confused me. However, this isn't true for everyone. You should find a system that works best for you.

➄ The most important suggestion I can pass on to you . . .go back and read ➀. You know the material (from doing ➀), how much good will cramming that extra 15 minutes before class do? This is not the type of class you should “cram” for and I won’t encourage it. If you come up with evidence on the effectiveness of cramming, let me know, I’d like to hear it. . . .

You will not gain sympathy from me if you explain how you stayed up all night studying or writing a paper for another class before our exam. You are telling me that you have bad study habits; there is nothing I can do about that (except tell you to change your ways). You are also demonstrating that you are not taking this class seriously. For some of you, this course material will be straightforward; but for others, you will succeed only if you keep working at it. Remember, you can succeed in this course.

**Statistics 233 Spring 2017 Schedule**

Last day to drop the class without a fee: 2/20; Last day to withdraw from the class: 5/3

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| **Week of**  | **Monday** | **Wednesday** | **Friday**  |
| **Feb 3**  |  | First Day of Class Chapter 1The What and The Why of Statistics | Chapter 1 Continued  |
| **Feb 10****LAB 1**  | Chapter 2 Organization and Graphic Presentation of Data  | Chapter 2 continued | Chapter 3 Measures of Central Tendency |
| **Feb 17**  | **NO CLASS** **President’s Day**  | Chapter 3 continued  | Test Review ***LAB 1 DUE***  |
| **Feb 24** | **TEST #1** | Survey Project/Group Discussion Chapter 4 Measures of Variability  | Chapter 4 Continued  |
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| **March 3 LAB 2**  | Chapter 5 The Normal Distribution  | Chapter 6 Sampling and Sampling Distributions | Survey Training Test Review***SURVEYS DISTRIBUTED*** |
| **March 10** **LAB 2****Data****Collection**  | **TEST # 2**  | Chapter 7 Estimation | Chapter 7 Continued ***LAB 2 DUE***  |
| **March 17** **Data** **Collection** | Chapter 8 Testing Hypothesis  | Chapter 8 Continued Test Review  | **NO CLASS**  |
| **March 24** | **SPRING BREAK** | **SPRING BREAK** | **SPRING BREAK** |
|  |  |  |  |
| **March 31** **LAB 3** **Data Entry**  | **NO CLASS** **But we will be meeting during lab.** ***SURVEYS DUE***  | **TEST #3**  | Chapter 9 Bivariate Tables ***LAB 3 DUE***  |
| **April 7****LAB 3** **Data Entry**  | Chapter 9 Continued | Chapter 10 The Chi-Square Test and Measures of Association | Test Review |
| **April 14****LAB 4**  | **TEST #4** | Chapter 10Continued | Chapter 11 Analysis of Variance  |
| **April 21****LAB 4**  | Survey Project/Group Discussion  | Chapter 11 continued  | Test Review  |
| **April 28** **LAB 4**  | **TEST #5**  | Chapter 12 Regression and Correlation | Chapter 12 continued  |
| **May 5****LAB 4** | Multiple Regression  | Multiple Regression Continued  | Conclusions Teaching Evaluation  |
| **May 12** | **Lab 4 Presentations**  | **Lab 4 Presentations**  | ***LAB 4 DUE*** Last day for late work (12 p.m.) |

**Final: Thursday, May 22, 9-10:50 a.m.**