

**ERSH 6300**  
**Applied Statistical Methods in Education**  
**Fall 2008**

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### **Course Description**

From Graduate Bulletin: “Techniques for describing and summarizing data for educational research studies. Applications of the standard normal distribution and the use and interpretation of standard scores. Inferential statistics for one and two population studies including means, proportions, and correlations. **Prerequisite: ERS4200/6200.**

The overall goal of the course is to present an introduction to statistics that emphasizes working with data and statistical ideas. The content of the course is divided into three parts.

1. Understanding the data
2. Understanding the inference
3. Application topics in inference

In order to achieve the overall goal, the course will involve readings from 2 textbooks, a series of assignments to reinforce the key concepts, a set of computer exercises, and three examinations.

### **Require Textbooks and Software**

Moore, D. S. (2007). *The basic practice of statistics* (4<sup>th</sup>. Edition). New York: W. H. Freeman and company.

Huck, S. W. (2003). *Reading statistics and research*. (4<sup>th</sup>. Edition). Boston: Allyn and Bacon.

SPSS

### **Suggested Supplementary Texts**

Green, S. B. & Salkind, N. J. (2005) *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data*. (4<sup>th</sup>. Edition) Upper Saddle River, NJ: Pearson Prentice Hall.

American Psychological Association (2001). Publication manual of the American Psychological Association (5<sup>th</sup> ed.). Washington, DC: Author.

## Assignments and Examinations

The text has exercises at the end of each chapter. It is vital to your success in this course that you spend time working on these assignments. Additional problems may be given out as review for tests.

In addition, computer assignments will be assigned during the semester. The computers in the classroom have SPSS on them and students can work before and after class if need be on these assignments. The CD that was included with the text has a statistical program called Crunchit that can also be used for statistical analysis.

There will be 3 exams during the semester including 2 take-home midterms and a final given during exam week. While examinations are not cumulative, the nature of the material is. So be aware that you may need to use previous knowledge to answer the second midterm and the final.

<b>Grading Policy</b>	Test 1 - 25%
	Test 2 – 25%
	SPSS Assignments – 25%
	Final – 25%

Grades will be assigned as follows:

100-94= A	89-86= B+	82-80 =B-	75-73 =C	69-60= D
90-93=A-	85-83= B	79-76 =C+	72-70 =C-	59 and below= F

## Academic Honesty

Students are responsible for being familiar with UGA's policy on academic honesty as published in the booklet, *A Culture of Honesty: Policy on Academic Honesty* (available online at <http://www.uga.edu/ovpi/honesty/acadhon.htm>). The UGA policy and regulations will be followed in this class. **Please be aware that your SPSS assignments are to be written individually, even though we do the analyses in class together. I expect you to use the statistical analysis that we produce in class together to write your own analyses and conclusions for each of the assignments. Sometimes students assume the collaboration from classtime carries over into completing the written part of the assignments, and so they write collaboratively. This is an incorrect assumption and will result in a grade of 0 on this assignment. The same is true for the take-home tests; these are to be completed individually with no assistance from anyone else.**

## **Advice**

### **Come to class on time**

I know that some of you come from long distances and perhaps have school duties that make it difficult for you to get here on time. Please do your best to do so. For some of you this may be a challenging class so being here as much as possible will be extra important. I will be available after class to answer questions that may come up. If additional help is needed I am available by appointment at my UGA office.

### **Do I have to be good at math to be good at statistics?**

No, that's why we have calculators and statistical computer packages like SPSS and Crunchit (included in the disc that comes with your text). You will need a calculator with some built-in statistical functions (means, standard deviations, correlations, regression lines). The statistics we learn in this class do not require an understanding of advanced math, but learning this material is similar to learning math in that it must be practiced. Repeated exposure is important if not essential; therefore, it would be best if students read the text repeatedly and work the exercises.

### **It's all Greek to me! ☺**

Statistics uses a lot of symbols like Greek letters and subscripts, which makes it similar to learning a foreign language. Think of the symbols as a foreign language vocabulary that you must learn in order to understand the equations. A good first step in understanding a statistical problem is to read it out loud.

### **Once I learn something can I pleeeeee ☺ be done with it?**

No. This course is progressive with topics building on each one so it's important that you get your confusions addressed as we go or they will serve as barriers to future learning.

### **Being successful in this class:**

The following comments are a sample of student responses to the question: "What advice would you give future students about how to be successful in this class?"

"Purchase SPSS, read Huck, do the practice problems in the book. Don't get behind."

"Be sure to follow the instructor's advice. Try to do as many problems as possible before class so that class time is used for clarification and not starting from scratch. Recognize that after the first set of SPSS assignments, things get intense pretty quickly."

"Students definitely have to put in the time and effort it takes to be successful in this class. It is not the type of class where you can just show up each week and expect to do well."

"Do the work every week! Ask many questions. Go to class!"

"Don't wait to ask questions because the content will move on and you will be left behind! The pace is fast and the content builds upon itself."

"Don't leave it for the end... practice what is given in class... and read the chapters prior to coming to class."

**The chapters below unless marked with an (H) all come from the Moore textbook. These assignments are tentative and may be changed.**

**ASSIGNMENTS**

		Chapters
August 19	Displaying Distributions with Graphs Introduction to SPSS	1
26	Describing Distributions with Numbers Normal Distributions <i>SPSS Assignment 1</i>	2 (H) 2 3
Sept. 2	Scatterplots and Correlation	4 (H) 3
9	Regression <i>SPSS Assignment 2</i>	5 (H) p. 565- 572
16	Producing Data: Sampling Producing Data: Experiments <i>SPSS Assignment 3</i> <b>Test 1 Given Out</b>	8 (H) 5 9 <b>1 - 9</b>
23	Introducing Probability <b>Test 1 Due</b>	10 (H) 6
30	Sampling Distributions	11
Oct. 7	Confidence Intervals: The Basic	14 (H) 6, 7
14	Test of Significance: The Basic Inference in Practice	15 16 (H) 8
21	From Exploration to Inference: Part II Review <b>Test 2 Given Out</b>	17 <b>10, 11, 14, 15, 16, 17</b>
28	Inference About a Population Mean <b>Test 2 Due</b>	18 (H) 11
Nov. 4	Two-Sample Problems Inference about a Population Mean <i>SPSS Assignment 4</i> <b>SPSS Assignments 1-3 Due</b>	19 20
11	Comparing Two Proportions Two-Way Tables	21 6

*SPSS Assignment 5*

18 Two Categorical Variables: The Chi-Square Test 23  
*SPSS Assignment 6*

25 Inference for Regression 24 (H) 12  
**SPSS Assignments 4-6 Due**

Dec. 2

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**Final assigned during final week**