

Course Objective and Related Courses: STA 6126 introduces statistical methods commonly used in the social sciences. There is no prerequisite. The first half of the course introduces descriptive statistics and inferential methods (confidence intervals and significance tests). The second half introduces bivariate methods (e.g., contingency table analysis, regression) and ends with an introduction to multiple regression. The follow-up course (STA 6127) presents more advanced regression methods (including multiple regression, analysis of variance, and logistic regression). Other courses in the Statistics Department that are appropriate for students who have taken STA 6126 include STA 5503 (Categorical Data Methods), STA 5507 (Applied Nonparametric Methods), and STA 5701 (Applied Multivariate Methods).

Instructor: Alan Agresti, 204 Griffin-Floyd Hall, 352-273-2981, e-mail AA@STAT.UFL.EDU. I am an emeritus (retired) faculty member at UF but am teaching part time for spring semester of 2009 and 2010.

Office Hours: Tuesday and Thursday 1:45-3:15 pm, or by appointment.

Teaching Assistant: Eugenia Buta, 218 Griffin-Floyd, e-mail ebuta@stat.ufl.edu. Office hours to be announced (and listed at the course home page).

Course web page: www.stat.ufl.edu/~aa/sta6126

Course Policy:

Text: *Statistical Methods for the Social Sciences*, by A. Agresti and B. Finlay, Prentice-Hall (4th ed., 2009). New and used copies are available at the UF bookstore and on the Internet and a copy is on reserve at the Science library. (My royalties from new textbook sales for the course are donated to UF.)

Exam: Three in-class exams, each of which contributes 1/3 of the final grade. *Make-ups will not be given unless arrangements have been made prior to the exam, and then only for illness or family emergencies.*

Exam Dates:	Exam 1	Thursday, February 12
	Exam 2	Thursday, March 26
	Final Exam	Friday, May 1, 10-12 am

Homework: I recommend that you work the textbook problems listed on the next page to improve your understanding and help prepare for exams. Feel free to work with other students on these and on course study. To provide you with feedback about your solutions, outlines of the solutions to the homework problems are available in a pdf file at www.stat.ufl.edu/~aa/restricted. Use this file to check your solutions and help you with problems that you find difficult. Please keep a neat file of your solutions to the homework problems. (These should be more detailed than those in the solutions!) Hand in this file when you take each exam. Each exam will contain 25 points (out of the 100 total) for homework credit.

Software: When we cover computationally complex methods, I'll show examples in class of the use of statistical software (SPSS) for the analyses. Students are encouraged to become familiar with the use of a software package, which is used more extensively in follow-up courses such as STA 6127. Those who have not had previous exposure to any statistical software may want to work in a team with 1 or 2 other students on exercises that require software. Statistical software is available at many computing labs on campus, and your department probably has some software on its machines. Some versions of software are available to UF students and faculty (often for one-year licences) at www.software.ufl.edu.

Outline: My lectures will cover topics presented in the following text material. I will post PowerPoint files of the lecture material at the course website, by chapter, before I cover the material in class.

<u>Chapter</u>	<u>Topic</u>	<u>Text Pages</u>	<u>Homework problems</u>
1.	Introduction to Statistics	1-7	2, 3, 5, 17
2.	Sampling and Measurement	11-21	1-3, 5, 7, 13, 14, 24, 27, 34, 36
3.	Descriptive Statistics		
	Univariate description	31-55	6, 10ab, 11, 19, 22, 24, 25, 28, 30, 33, 35, 39, 59, 64, 69, 70, 72, 73, 74, 78
	Bivariate description	55-61	41, 48, 49, 50
4.	Probability and Sampling Distributions		
	Probability/ Normal distributions	73-85	8-12, 17, 19, 21, 23, 47, 54, 55
	Sampling distributions	85-99	27, 29, 33, 36, 41, 42, 46, 50-53, 57
5.	Inference: Estimation		
	Confidence interval for proportions	107-116	4, 7, 8, 12, 13, 18, 47, 48, 66-68, 77
	Confidence interval for means	116-123	21, 22, 24, 25, 28, 32, 69-71, 73
	Sample size determination	123-129	34, 35, 39, 41, 44, 62
6.	Inference: Significance Tests		
	Mean: Hypotheses, test statistic, P-value	143-155	1-3, 9, 11, 39, 52-55
	Proportion: Steps of test	156-159	15
	Decisions and types of errors	159-166	17, 18, 22-25, 45, 50, 51, 59, 61
	Finding power and P(Type II error)	166-169	29, 30, 56, 57
	Binomial test for small n	169-173	33, 34
7.	Comparison of Two Groups		
	Comparing proportions	183-190	1, 9, 11, 16, 59, 62
	Comparing means	191-193, 197-201	21, 23, 32b, 41, 49, 50, 55, 60, 61, 63
	Matched samples	193-197	26
8.	Association Between Categorical Variables		
	Contingency tables, Chi-squared	221-229	1, 3, 4, 5, 9, 10
	Residuals	229-233	11, 14, 16
	Summarizing association	233-239	17, 18, 20, 22, 29a,
9.	Linear Regression and Correlation		
	Regression model, least squares	255-268	1, 3, 7, 10, 25, 66
	Correlation and r^2	269-276	11-13, 18, 20, 38, 58-61, 67
	Inference, assumption, influence	276-289	29, 32, 42, 50-55
10.	Introduction to Multivariate Relationships		
	Association and causality, statistical control	301-307	3, 5, 7, 33, 34, 39, 40,
	Relationships, statistical interaction	307-313	11, 14, 16, 32, 38, 42-44
11.	Multiple Regression	321-346	1, 4-7, 19, 25, 44, 46, 48(a-f,h-k,m,n), 49, 66, 67