

Political Science 201  
Political Data Analysis  
Spring 2009  
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Syllabus

The object of this course is to understand the how and why of basic statistical analysis. It is the instructor's belief that the skills of statistical analysis are best developed by doing statistical analysis. Consequently, the course material will be covered primarily through project work in which students obtain primary data observations and execute the appropriate statistical analyses for the type of data collected. These projects will cover the following statistical concepts and procedures:

1. Descriptive Statistics: Categorical data
2. Descriptive Statistics: Quantitative data
3. Probability Distributions
4. Comparing quantitative observations from two different groups: the t-test
5. Assessing the relationship between one quantitative measure and another: Correlation
6. Comparing categorical observations from two or more different groups: the Chi-square test
7. Comparing quantitative observations from two or more different groups: ANOVA
8. Assessing the relationship between one quantitative measure and time: Time Series Regression
9. Quantifying the relationship between one quantitative measure and one other quantitative measure: Bivariate Regression
10. Quantifying the relationship between one quantitative measure and several other quantitative measures: Multiple Regression

We will begin the course, however, with an overview of the Theory of Probability. This introduction to the nature of chance will be important in the student's understanding of the practice of statistical inference.

The project work in this course will be completed, for the most part, using the computer program known as SPSS (Statistical Package for the Social Sciences). Class time in the computer lab will be dedicated to these efforts, and the student is encouraged to have an active University computer. The textbooks for this course will be *Elementary Statistics in Social Research* by Levin and Fox, and *A Simple Guide to SPSS for Windows* by Kirkpatrick and Feeney.

Grades in this course will be primarily determined by each student's project work. However, there will be both a midterm and final exam intended to assure each student's continued progress in understanding the practice of statistical analysis.

Any student with special instructional needs is requested to discuss those needs with me at the student's earliest convenience.

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Tentative Lecture and Reading Assignment Schedule

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Reading Due</b>
1	1/12	Introduction: Statistics, Probability, and Variation	
	1/14	Probability theory and Chance	
	1/16	Probability theory: Random Variables (RVs)	
2	1/19	OFF	
	1/21	Probability theory: Random Variables	
	1/23	Probability theory: RV Distributions	
3	1/26	Probability theory: RV Distribution	L&F: Ch. 5
	1/28	Probability theory: RV Normalization	
	1/30	Probability Theory: RV Normalization	
4	2/2	Analyzing Qualitative Observations	L&F: Ch. 1 and 2
	2/4	Analyzing Qualitative Observations	
	2/6	Analyzing Quantitative Observations	L&F: Ch. 3 and 4
5	2/9	Analyzing Quantitative Observations	
	2/11	Comparing Quantitative Observations for Two Different Groups	L&F: Ch. 6 and 7
	2/13	Comparing Quantitative Observations for Two Different Groups	
6	2/16	Comparing Quantitative Observations for Two Different Groups	
	2/18	Comparing Quantitative Observations for Two Different Groups	
	2/20	LAB	
7	2/23	Assessing the Relationship between Two Quantitative Variables: Correlation	L&F: Ch. 10
	2/25	Assessing the Relationship between Two Quantitative Variables: Correlation	
	2/27	LAB	
8	3/2	Assessing the Relationship between Two Quantitative Variables: Correlation	
	3/4	Assessing the Relationship between Two Quantitative Variables: Correlation	
	3/6	LAB	
9	3/9	Assessing the Relationship between Two Qualitative Variables: Chi-Square	L&F: Ch. 9
	3/11	Assessing the Relationship between Two Qualitative Variables: Chi-Square	
	3/13	LAB	

10	3/16	Assessing the Relationship between Two Qualitative Variables: Chi-Square	
	3/18	REVIEW	
	3/20	MIDTERM EXAM	
11	3/23	SPRING BREAK	
	3/25	SPRING BREAK	
	3/27	SPRING BREAK	
12	3/30	Comparing a Quantitative Variable across Several Groups: ANOVA	L&F: Ch. 8
	4/1	Comparing a Quantitative Variable across Several Groups: ANOVA	
	4/3	LAB	
13	4/6	Comparing a Quantitative Variable across Several Groups: ANOVA	
	4/8	One Quantitative Variable Observed over Time: Time Series Regression	L&F: Ch.11
	4/10	LAB	
14	4/13	One Quantitative Variable Observed over Time: Time Series Regression	
	4/15	One Quantitative Variable Observed over Time: Time Series Regression	
	4/17	LAB	
15	4/20	Relationship between Two Quantitative Variables: Bivariate Regression	
	4/22	Relationship between Two Quantitative Variables: Bivariate Regression	
	4/24	LAB	
16	4/27	Relationship between Two Quantitative Variables: Bivariate Regression	
	4/29	REVIEW	
	5/1	LAB	
17	5/4	Presentations	
	5/6	Presentations	
	5/8	Presentations	