

**Introduction to Statistics  
Public Policy 2030  
Fall 2008**

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**Instructor:** Professor Andrew Aurand  
**Office:** Blistein House, Room 102  
**Office Hours:** Thursday, 3:30 – 5:30PM and by appointment  
**Class Time:** Tuesday and Thursday, 1:00 – 2:20PM, CIT Building Room 265  
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**Course Website:** <https://mycourses.brown.edu>

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### **Course Objectives**

By the end of this course, students should:

- Gain a conceptual understanding of statistical analysis.
  - Be proficient using SPSS to obtain descriptive statistics, cross-tabulations, correlations, significance tests and regression analysis.
  - Be able to select the appropriate statistical technique for data analysis.
  - Be able to present and interpret results from statistical analyses.
  - Be able to read and understand statistical analyses presented in newspaper and journal articles.
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### **Required Readings**

- Moore, David S. 2007. *The Basic Practice of Statistics*, 4<sup>th</sup> Edition. New York, NY: W.H. Freeman and Company.
- Babbie, Earl, Fred Halley, and Jeanne Zaino. 2007. *Adventures in Social Research: Data Analysis Using SPSS 14.0 and 15.0 for Windows*, 6<sup>th</sup> Edition. Thousand Oaks, CA: Pine Forge Press. **(BHZ)**

\*\* Other readings may be assigned as the semester progresses.

## Recommended Readings

- Lewis-Beck, Michael S. 1995. *Data Analysis: An Introduction*, #103. Thousand Oaks, CA: Sage Publications. (on reserve at Rockefeller Library)
- Lewis-Beck, Michael S. 1980. *Applied Regression: An Introduction*, #22. Newbury Park, CA: Sage Publications. (on reserve at Rockefeller Library)

## Other Assigned Texts, which will be made available

- Shively, Phillips. 1990. *The Craft of Political Research*, 3<sup>rd</sup> edition. Englewood Cliffs, NJ: Prentice Hall. (on reserve at Rockefeller Library)
- Mohr, Lawrence B. 1990. *Understanding Significance Testing*. Newbury Park, CA: Sage Publications. (on reserve at Rockefeller Library)

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## Course Requirements and Grading

Assignments	10%
SPSS Labs	25%
Quizzes	30%
Final Exam	35%

Students are expected to complete all assigned reading and homework assignments on time. Learning statistics often requires daily practice and patience. Therefore, I recommend reading the assigned chapter both before and after the lecture to reinforce the material.

### *Assignments*

Students will generally have an assignment due every week during the course. Collaboration on the assignments is acceptable, but each student is required to write up his or her own solutions. To get full credit, all steps done by hand must be shown (show your work) or relevant computer output must be provided.

The SPSS labs are significantly longer than the weekly textbook assignments and require the use of SPSS. Each SPSS lab assignment will be distributed during the class prior to the actual lab. It will be due the class period after the lab. When using SPSS, the program may provide some output that is not pertinent to the question at hand. To be proficient in using SPSS (or any statistical software), you should be able to discern which output is necessary to report. Therefore, relevant output from SPSS should be copied to a Word document for submission.

Assignments are due by **4:00 on Tuesday**. All completed assignments should be placed in my mailbox at the Taubman Center.

The purpose of the assignments is to (1) give you practice in the basic skills and concepts of statistics, (2) give you practice in using SPSS and interpreting its output, (3) and provide feedback on your understanding of the concepts in a timely manner. To that end, late assignments **will not** be accepted for credit.

## Disability Support Services

Any students requesting academic accommodations based on a disability is required to register with Disability Support Services (DSS). The registration form can be requested by contacting DSS at 401-863-9588 or by emailing [dss@brown.edu](mailto:dss@brown.edu). A letter of verification for approved accommodation can be obtained from DSS. For more information, go the DSS website at [http://brown.edu/Student\\_Services/Office\\_of\\_Student\\_Life/dss/](http://brown.edu/Student_Services/Office_of_Student_Life/dss/).

## Academic Integrity

Students are expected to act in accordance with Brown University's policy on academic integrity. For more information, see [http://www.brown.edu/Administration/Dean\\_of\\_the\\_College/curriculum/principles.php](http://www.brown.edu/Administration/Dean_of_the_College/curriculum/principles.php)

## Course Schedule

We will do our best to stay on schedule; however, if we need to spend more time on a particular topic we will amend the schedule accordingly.

An outline of the lecture will be available on the course website prior to class.

Week	Date	Topic	Readings	Assignment
1	9/4	Course Introduction Measurement Theory <ul style="list-style-type: none"> <li>• Levels of Measurement</li> <li>• Evaluating Measures</li> </ul>	BHZ, Chapters 1 and 2 Moore, xxiii – xxix Shively, Chapters 4 and 5	
2	9/9	Frequency Distribution Graphic Presentation of Data	Moore, Chapter 1 BHZ, Chapter 4	
	9/11	Descriptive Statistics <ul style="list-style-type: none"> <li>• Measures of Center</li> <li>• Measures of Variability (spread)</li> </ul>	Moore, Chapter 2 BHZ, Chapters 5 and 6 Lewis-Beck #103, pp. 1 – 18	
3	9/16	Normal Distribution	Moore, Chapter 3 BHZ, Chapter 7	Moore: 1.30 2.6 1.40 2.24 2.4
	9/18	SPSS Lab 1		
4	9/23	Sampling	Moore, Chapters 8 and 9	SPSS Lab #1 Moore: 3.7 3.12 3.10 3.33 3.11 3.34
	9/25	Introduction to Probability	Moore, Chapter 10 and 12	
5	9/30	Rules of Probability	Moore, Chapter 12	Moore: 8.32 10.9 10.46 8.46 10.32 10.51 10.42

	10/2	<b>Quiz #1</b>		
6	10/7	Sampling Distributions	Moore, Chapter 11 Mohr, pp. 1-27	<u>Moore:</u> 12.1 12.5 12.48 12.7 12.54
	10/9	Confidence Intervals	Moore, Chapter 14	
7	10/14	Hypothesis Testing (test of significance)	Moore, Chapters 15 and 16  Mohr Note: Mohr provides a good explanation of hypothesis testing after first giving a brief review of important concepts you should know. You will probably find it useful to read. It is on reserve.	<u>Moore:</u> 11.9 14.24 11.37 14.30 14.7 14.34 14.21
	10/16	Inference for One Population Mean	Moore, Chapter 18	
8	10/21	Hypothesis Testing (test of significance) – Inference for Two Population Means	Moore, Chapter 19 (pp. 460-476)	<u>Moore:</u> 15.2 16.14(a) 15.10 18.29 15.14 <u>Handout</u> 15.18 15.52
	10/23	SPSS Lab 2		
9	10/28	Inference for Population Proportion	Moore, Chapter 20	SPSS Lab #2
	10/30	Continue Inference for Population Proportion -- Review		
10	11/4	<b>Quiz #2</b>		<u>Moore:</u> 20.13 20.41 20.42
	11/6	Contingency Tables	Moore, Chapter 6 BHZ, Chapter 10	
11	11/11	Chi-Square Measures of Association	Moore, Chapter 23 BHZ, Chapter 13, pp. 223-240 Lewis-Beck #103, pp. 22-30	<u>Moore:</u> 6.24 <u>BHZ:</u> pp. 183-184, 11-16
	11/13	Correlations and Intro to Linear Regression	Moore, Chapter 4 BHZ, Chapter 13, pp. 240-261 Lewis-Beck #103, pp. 19-22 Lewis-Beck #103, pp. 41-53	
12	11/18	Simple Linear Regression	Moore, Chapters 5 and 24 Lewis-Beck #22, pp. 9-47	SPSS (chi-square) Exercise  <u>Moore:</u> 23.2, 23.6, 4.8 23.2(a) is asking for conditional probabilities (or percentages). You may put them in a table or display as a bar graph

	11/20	ANOVA	Moore, Chapter 25 BHZ, Chapter 14 Note: BHZ's chapter gives a brief summary of Chi-Square, independent samples t-test, and ANOVA	
13	11/25	SPSS Lab 3		Moore: 5.24 5.30
	<b>11/27</b>	<b>No Class – Thanksgiving Break</b>		
14	12/2	Multiple Regression	Lewis-Beck #22, pp.47-74	SPSS Lab #3
	12/4	SPSS Lab 4		
15	12/9	<b>Study for Final Exam</b>		SPSS Lab #4 Article Assignment
	12/13 – 9 AM	<b>Final Exam</b>		