

**Introduction to Statistics
Public Policy 2030
Fall 2009**

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Office: Taubman Center, Room 006
Office Hours: Tuesday, 3:00 – 5:00PM and by appointment
Class Time: Tuesday and Thursday, 1:00 – 2:20PM, CIT Building Room 265
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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. and George P. McCabe. 2006. *Introduction to the Practice of Statistics, 5th Edition*. New York, NY: W.H. Freeman and Company. **(M)**
Please Note: We will use the 5th Edition, not the 6th Edition.
ISBN: 978-0-7167-6400-7
- Pollock, Philip H. 2009. *An SPSS Companion to Political Analysis, 3rd Edition*. Washington, DC: CQ Press. **(P)**

** Other readings will be assigned as the semester progresses.

Recommended Readings

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

Other texts on reserve at Rockefeller Library

- Shively, Phillips. 1990. *The Craft of Political Research*, 3rd edition. Englewood Cliffs, NJ: Prentice Hall.
- Mohr, Lawrence B. 1990. *Understanding Significance Testing*. Newbury Park, CA: Sage Publications.

Course Requirements and Grading

Assignments	15%
SPSS Labs	25%
Quizzes	30%
Final Exam	30%

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

Assignments and SPSS Labs

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.

Each SPSS assignment, which requires the use of SPSS, will be distributed the week prior to its due date. SPSS 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.

All assignments are due by **5:00 on Tuesdays** (with two exceptions noted on the course schedule). 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.

SPSS Software

SPSS is available on computers at the Taubman Center and other computer clusters on campus, including in the CIT Building and Rockefeller Library.

It is not necessary, but if you wish to obtain a license to use SPSS on your own computer:

1. Go to <http://software.brown.edu/dist/purchase/w-spss17.html> and click on e-Academy. Scroll down to SPSS. The “GradPack Base” will have the functions we need for class. Unfortunately, you will only be able to obtain a temporary “lease” of SPSS.

Disability Support Services

Any student 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. 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/.

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

Course Schedule

We will do our best to stay on schedule; however, if we spend more or less 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 M = Moore & McCabe P = Pollock + = on course website R = on reserve in Rockefeller	Assignment
1	9/10	Course Introduction Levels of Measurement Frequencies Graphic Presentation of Data	+ : “The Logic of Measurement” M: xxxi – xxxiv, 1.1 (<i>Skip pages 21-23</i>) Optional: R: Shively, Chapters 4 & 5	
2	9/15	Descriptive Statistics <ul style="list-style-type: none">▪ Measures of Center▪ Five-Number Summary▪ Outliers▪ Measures of Variability (spread)	M: 1.2 P: Chapters 1 and 2	

	9/17	Descriptive Statistics (Continued) Normal Distribution	M: 1.3	
3	9/22	Normal Distribution (Continued)	M: 1.3	M: 1.4 1.47 1.20 1.49 1.42 1.64 (Fig. 1.21)
	9/24	SPSS Lab 1	P: Chapter 3	
4	9/29	Probability	M: 4.1, 4.2, 4.3, 4.4 <i>SKIP pages 301 to 304 (Rules for Variances)</i>	SPSS Lab #1 M: 1.86 1.94 1.89 1.98 1.92 1.116
	10/1	Rules of Probability Sampling	M: 4.5 +: "How Polls are Conducted" OR "An MSNBC.com guide to presidential polls" http://www.msnbc.msn.com/id/27339545 M: 3.3 (how to use a "random digit" table is explained under "How to randomize" on page 203-204)	
5	10/6	Quiz #1		M: 4.22 4.49 4.108 4.29 4.81 4.46 4.98 (see bottom of page 325)
	10/8	Sampling Distributions	M: 3.4, 5.Introduction, 5.2	
6	10/13	Confidence Intervals Margin of Error	M: 6.1	M: 3.52 5.34 3.56 5.36
	10/15	Hypothesis Testing (Test of Significance)	M: 6.2, 6.3, 6.4	
7	10/20	Inference for One Population Mean	M: 7.1 <i>SKIP pages 465-470 (Inferences for Non-Normal Populations)</i> P: Chapter 6, pages 119-127 Optional: R: Mohr provides a good explanation of hypothesis testing, starting with sampling distribution and confidence intervals. It is on reserve in Rockefeller Library.	M: 6.5 6.62 6.110 6.25 6.82 6.42 6.106
	10/22	Inference for Two Population Means Distribute SPSS Lab 2	M: 7.2 P: Chapter 6, pages 127-130	

8	10/27	Inference for Population Proportion	M: 3.4 (pages 231-236), 8.1	<u>M</u> : 7.8 (b,c,d) 7.37 7.12 7.72
	10/29	Contingency Tables Chi-Square	M: Chapter 9 P: Chapter 4 (pages 57-59, "Using Crosstabs") Optional: +: Moore, Chapters 6 and 23 (These optional chapters are very similar to your current textbook, but give a clearer description of contingency tables if you need it.)	SPSS Lab #2
9	11/3	Quiz #2		<u>M</u> : 8.11 8.26 8.22 9.4 8.24 9.6
	11/5	Chi-Square Measures of Association Distribute SPSS Lab 3	P: Chapter 7 +: Berman, Chapter 4	
10	11/10	Correlations Intro to Linear Regression	M: Chapter 2	
	11/12	Simple Linear Regression	M: Chapter 10 Optional: Lewis-Beck: pp. 9-47	SPSS Lab #3 <u>M</u> : 9.22 (a & c)
11	11/17	Multiple Regression Assumptions of Regression	M: Chapter 11 Optional: Lewis-Beck: pp. 47-66	<u>M</u> : 2.21 2.55 2.38 2.92 2.42 10.16
	11/19	SPSS Lab 4	P: Chapter 8	
12	11/24	Multiple Regression – Dummy Variables and Interactions	+: Moore, Chapter 28. (Similar to last week's reading, but see sections on "Parallel Regression Lines" and "Interaction".) P: Chapter 9 Optional: Lewis-Beck, pp.66-74	SPSS Lab #4 <u>M</u> : 11.8
	11/26	No Class – Thanksgiving Break		
13	12/1	ANOVA	M: Chapter 12 <i>Skip pages 748-750 (Power)</i>	Article Assignment
	12/3	SPSS Lab 5	+: "ANOVA in SPSS" in help folder P: Chapter 4, pages 59-69	
14	12/8	No Class (tentative)		SPSS Lab #5
		Final Exam		