

LPSC 7305: Research and Statistical Methods
Syllabus

This is an introductory course in descriptive and inferential statistics and basic techniques of data analysis. Because it is geared to the graduate level and some familiarity with statistics is assumed (or can, for bright and hard-working people, be acquired in short order), the course will travel rather quickly through the more elementary material. Topics included are summary statistics of variables, probability, sampling distributions, estimation, hypothesis testing, and analysis of relationships among variables.

There are many competing approaches to teaching statistics. Some instructors emphasize formulas and calculations, while others ignore the process and focus on interpreting computer output. Some stress mechanics, while others strive for conceptual understanding. I try to balance and blend all these approaches. It is important to perform certain calculations in order to grasp fully the logic of statistical tools, although you are not expected to memorize formulas. I stress an understanding of when to use which procedures, and expect you to become familiar to computer-based analysis and interpretation.

Course Objectives: Through lectures and homework assignments, students should be able to:

- Understand the nature and properties of empirical data
- Describe quantitative information through summary statistics, tables and graphs
- Appreciate the connection between probability sampling and parameter estimation
- State and test hypotheses pertaining to group differences using various parametric and nonparametric tests of significance
- Recognize the assumptions underlying various statistical tools and the conditions under which they are appropriate
- Calculate and test associations among variables using various parametric and nonparametric measures
- Use statistical software to manipulate variables, analyze data sets and interpret the output
- Access archival data

Books:

Levin, Fox and Forde, *Elementary Statistics in Social Research*, 11th edition. Allyn & Bacon, 2010.

William Wagner, *Using IBM® SPSS® Statistics for Social Statistics and Research Methods*, 3rd edition, Sage, 2011.

Susan E. Morgan, Tom Reinhart, and Tyler R. Harrison, *From Numbers to Words: Reporting Statistical Results for the Social Sciences*, Allyn & Bacon, 2002.

Topics, readings and assignments (tentative):

Date	Topic	Chapter	Due
September 7	Measurement, tabulation and graph	1-2	
September 14	Central tendency and dispersion	3, 4	
September 21	Probability	5	
September 28	SPSS		
October 5	Estimation	6	
October 12	T-test	7	HW1
October 19	ANOVA	8	
October 26	Non-parametric tests	9	
November 2	Correlation	10, 12	
November 9	Regression	11	HW 2
November 16	Midterm Exam		
November 23	No school		
November 30	Multiple and logistic regression	11	
December 7	Overview	13	HW 3
December 14	Final Exam		

Note: You should preview reading assignments before the material is covered in class and then review closely afterwards.

Homework:

There will be three SPSS-based homework assignments, each worth 15% of the course grade. The first will cover descriptive measures, tables and graphics, the second will cover various tests of differences, and the third will involve measures of association. More detail will be provided in class.

Although not collected or graded, you are encouraged to work through the examples at the end of the chapters in Levin, Fox & Forde, solutions for which are provided in the companion on-line site.

Examinations:

There will be two examinations, a mid-term on November 16 worth 25% of the course grade, and a cumulative final that will count for 30% of the course grade. These exams are given in-class. All formulas and necessary formulas and tables will be provided, and you may have a one double-sided, 8½ x 11 in page of notes.

Academic Honesty:

Last, but by no means least, I take seriously (as should you as well) the Northeastern University policy regarding academic integrity (see northeastern.edu/osccr/academichonesty.html). Examinations (in-class or take-home) as well as homework assignments are to reflect your work, and your work alone. Although you may, unless otherwise stated, seek general assistance from each other as colleagues, work products are to be completed individually. Cheating in any form will result in a failing grade for the exam/assignment or the class, and may result in referral to the Office of Student Conduct and Conflict Resolution.

Office Hours:

Wednesdays 1:30-4:00, or by appointment

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