SPRING 2015
Basic Statistics APSTA-UE 1085
Steinhardt School, New York University

Lecture: Mon & Wed 3:30PM - 4:45PM
Lab: Thursday11:00AM - 12:15PM; Thursday 3:30PM - 4:45PM

Instructor: Rossi A. Hassad, PhD, MPH	TA: Jason Rarick
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Office Hours: By Appointment	Lab: Thursday 11:00AM-12:15PM

Course Description: This introductory course is designed to prepare undergraduate & master's level students to use statistics for data analysis. The course makes use of SPSS for Windows; a statistical computer software package for the social sciences. Topics include frequency distributions and their graphical representations, percentiles, measures of central tendency and dispersion, simple linear correlation and regression. Liberal Arts Core/CORE Equivalent - satisfies the requirement for Quantitative Reasoning

Note: All assignments (including deadlines), course notes, and other materials will be posted on the NYU Classes course website. Also, a basic calculator is required for this course.

Prerequisites: This is a basic statistics course, and is designed to serve as a first course in statistics. A sound understanding of basic arithmetic and algebra, and possession of general computer skills are required.

My Teaching Philosophy & Approach:
Let me begin by saying that I recognize the high level of anxiety that is generally associated with the introductory statistics course; as it is often equated to mathematics, and perceived to be difficult. However, be assured that this course will not focus on mathematics; rather, the emphasis will be on statistical literacy, conceptual understanding and applications. My primary goal is to facilitate you to make sense of data, using basic statistical methods and computer applications, to appreciate and engage in evidence-based decision-making; and most of all, to have fun learning by exploring data, and discovering the underlying meaning and "story". Multiple assessment methods and active learning strategies will be used to meet your diverse learning styles.

The following publications may give you further insight as to my teaching philosophy and approach. In particular, the first paper includes most of the statistical methods that will be addressed in this course.
1. http://scholarcommons.usf.edu/numeracy/vol4/iss2/art7/ - click on "download" for the full paper (Constructivist and Behaviorist Approaches: Development and Initial Evaluation of a Teaching Practice Scale for Introductory Statistics at the College Level)

2. http://escholarship.org/uc/item/9k19k2f7 (click on "download PDF"): Faculty Attitude towards Technology-Assisted Instruction for Introductory Statistics in the Context of Educational Reform

Required Text: The required text for this course is "Intro Stats" (4th Edition) by De Veaux, Velleman and Bock. Recommended, is "Statistics Using SPSS: An Integrative Approach" by Weinberg and Abramowitz.

Learning Objectives:

- To identify and apply appropriate statistical methods based on research design, hypothesis/objective, type of data, number of variables, assumptions, etc.

- To differentiate between "association" and "causation" in the analysis of research outcomes

- To recognize the utility and limitations of statistical techniques

- To read and understand the statistics presented in the scientific literature

- To compute and communicate statistical information

- To interpret statistical notations and outcomes, and write a scientific report

Assessment:

In general, all students will be required to participate in group problem-solving, discussions, computer laboratory exercises, demonstrations based on class-generated and secondary data, critique of statistics in peer-reviewed articles and the popular press, as well as written and oral presentations. Note that attendance and class participation will count toward your final grade. Multiple assessment methods and active learning strategies will be used to meet your diverse learning styles. It is your responsibility to obtain the required material and complete all assignments in a timely manner.

Homework: The course will be taught in a modular format (moving from descriptive to inferential statistics) with each module addressing a particular statistical test or set of closely related concepts. Accordingly, there will be eight (8) graded homework assignments, each with two components; manual calculations, and SPSS analysis and report.

The IBM-SPSS software (version 22) will be used for data analysis, and laboratory assistance will be provided. All lab assignments can be completed in the NYU computer labs. However, I recommend that you purchase or rent the software: IBM® SPSS® Statistics 22 - Statistics Base Grad Pack (Windows or Mac version). It is available at the NYU computer store at a discount to students, or via http://www.onthehub.com/spss/ (6 to 12 month rental options are available).

Exams: There will be one midterm and one cumulative final exam.

Exploratory Data Analysis (EDA) Project: In order to demonstrate the integration and application of knowledge and skills in a meaningful way, you will be required to complete one project during the semester in which you will explore and analyze secondary data using the IBM-SPSS software, interpret your results, and provide a coherent written report following the APA guidelines. You will be required to work in small groups of 3 to 4 students. Other requirements and expectations will be discussed in class, and a template will be provided.

Assessment Weighting

Attendance & Class Participation	10%
Homework (manual calculations):	10%
Homework (SPSS Lab Assignments):	15%
Midterm Exam:	20%
Final Exam:	30%
Project (EDA – Exploratory Data Analysis):	15%

All components of the assessment must be completed satisfactorily in order to obtain a passing grade.

Basic Statistics APSTA-UE 1085 (Rossi A. Hassad, PhD, MPH) – Spring 2015

DATE	LECTURE TOPIC	READING ASSIGNMENT
	Overview of Statistics (including historical perspective and statistical literacy) Types of Data and Levels of Measurement	Chapter 1
	Organizing & Exploring Data: Frequency Distributions, Cross-tabulation & Measures of Central Tendency	Chapter 2 Chapter 3
	Measures of Variability z-scores & the Standard Normal Distribution	Chapter 3 Chapters 4 & 5
	Probability & Sampling* Standard Error & Distribution of Sample Means; The Central Limit Theorem	Chapters 9 & 10 Chapter 15
	Hypothesis Testing & Estimation: Significance, Confidence Interval, and Effect Size	Chapters 16 , 17 & 19
	Association & Causation (Experimental and Observational Research Designs)*; Statistical Considerations for Data Collection and Data Analysis -Reliability, Validity, Confounding, effect modification; EDA (Exploratory Data Analysis) Project	Chapter 11
	Introduction to the t-statistic (one sample)	Chapter 18
TBA	Mid-Term Examination Review MID-TERM EXAMINATION	
	The Independent Samples t-test	Chapter 20
	The Dependent (paired) Samples t-test	Chapter 21
	One-way ANOVA	Chapters 24
	ANOVA (two-factor/factorial design)*	
	Simple Linear Correlation Analysis* Simple Linear Regression Analysis	Chapters 6 ,7 8 & 23
	Chi-Squared and other non-parametric tests	Chapter 22
	Introduction to Multivariate Analysis*	Chapter 25
	Final Examination Review	Cumulative
TBA	**FINAL EXAMINATION**	Deadline for submitting project (EDA)

* Supplemental reading material will be provided.

Academic Integrity: Academic integrity is the guiding principle for all that you do; from taking exams, making oral presentations to writing term papers. It requires that you recognize and acknowledge information derived from others, and take credit only for ideas and work that are yours. Please refer (see link below) to the full text of the applicable statement on academic integrity.

http://steinhardt.nyu.edu/policies/academic_integrity

Accommodations:

NYU is committed to facilitating equal access for students with disabilities, including hearing and visual impairments, mobility impairments, learning disabilities and attention deficit disorders, chronic illness, and psychological impairments. Per NYU policy, students seeking accommodation are required to contact the Moses Center on 240 Greene Street, 2nd Floor, 212-998-4980.