

UEP 254 Quantitative Reasoning Summer 2015

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Course Schedule: Tuesdays 9:15-10:45 – UEP’s Brown House
10:45-12:30 - Eaton 208

Office Hours: Tuesdays 12:30-2:00 and by appointment

Course Description

This course promotes critical thinking through the use of statistics. Basic data analysis tools relevant to research, thesis work, and policy analysis are explored. This includes but is not limited to the collection of data, graphical analysis of statistical trends, understanding probability, and methods of data analysis. Students will gain proficiency in a statistical software package, SPSS. The goal of this course is to promote statistical literacy among students, including the ability to fully comprehend basic statistics represented in academic journal articles, interpreting statistical tables. This course will also prepare students for more advanced coursework in statistics. Although principles of calculus and linear algebra provide the backbone to all statistical concepts and methods, this course will not be heavily reliant on math. However, basic math skills at the level of college algebra are assumed and a recent math course at this level is strongly encouraged.

Required Resources

1. All students must have a portable flash (aka – USB) drive
2. <u>The Essentials of Political Analysis</u> – 4 ^h Edition – Philip H. Pollock III
3. <u>An SPSS Companion to Political Analysis</u> – 4 th Edition – Phillip H. Pollock III

Course Software

Throughout the course we will be using the statistical software program, SPSS. In the past students have benefited from having a copy of SPSS to use on their own computers. Note that this is not required - we will be using a computer lab that has SPSS installed on all the computers during our classtime. However, students have found it helpful to be able to use SPSS on their own time to complete homework assignments, etc. rather than being restricted to the computer lab hours. **NOTE THE LABS CLOSE WITH THE LAST DAY OF SUMMER SESSION SO PLAN ACCORDINGLY FOR COMPLETION OF YOUR FINAL PAPER.**

To make the purchase please visit:

<https://it.tufts.edu/sw-spss>

You will need to purchase the Standard Grad Pack 23 for \$55 + a \$4.99 download fee. If you purchase the “Basic” package, there are analyses that we do in class that you will not be able to perform in that package. Keep in mind that you are not required to purchase SPSS, but it is recommended for your own convenience.

Course Website

A Trunk website has been developed for this class that will provide student access to general course information, handouts, supplemental readings, homework sets, datasets, and other materials throughout the semester. It can be accessed from <https://trunk.tufts.edu>. Follow the instructions on the website for Tufts students to obtain your username and password.

Grading Policy

Please be aware that you need to obtain a grade of B- or better in order to successfully complete this quantitative core course as required by the UEP MA and MPP programs.

Prerequisites

Prior to taking this course, students are required to show evidence of basic algebra and graphing skills. A score of 550 or above on the quantitative section of the GRE or recent (within the last five years) completion of a college-level algebra courses satisfy this requirement.

Course Assignments

Assignment	% of Grade
Exam 1	20%
HW Assignments	20%
Research Project	30%
Exam 2	20%
Participation	10%
Total	100%

Labs

Labs will take place in Eaton 208 during the second half of our regularly scheduled class. During the labs you will learn to use SPSS and acquire the tools you need to complete the homework assignments. The format of the labs is specifically designed by the instructor to coincide with the in-class discussions and homework sets. The use of statistical software will not always be explicitly addressed during the in-class lectures, and the labs are not designed as a review of materials covered in class.

Homework Assignments

Four homework assignments will be completed throughout the course. These assignments will primarily be focused on having students practice the SPSS procedures that were reviewed in the computer lab. Students are encouraged to work together on homework assignments. However, each student must hand in his/her own work and it must be evident that the homework handed in reflects the student's own understanding of the assignment.

Research Project

Each student is required to complete a research paper demonstrating their understanding of the statistical techniques covered during class. The research project will take the form of an abbreviated research paper. The method and results section should be of publishable quality, but the introduction and discussion sections will be shortened. Students will begin organizing a dataset for use in the final research project early in the course. Students are encouraged to pursue topics that are of interest/relevance to their own areas of research.

Exams

The results of two exams will comprise 40% of your grade. Both exams will be in take home format and will require knowledge of both theoretical and applied topics. A portion of the exams will also require students to conduct analyses using SPSS.

Participation

Participation is an essential component of successful completion of this course and will comprise 10% of students' grades. Participation can take several forms. The most obvious form, of course, is class attendance. Students will also be given ample opportunities to participate during class discussions and during lab.

Course Outline

Date	Topic	Reading	Assignment Due
May 26	Introduction to Course, Introduction to SPSS		
June 2	Turning Ideas into Data	Pollock Chapter 1 <u>Lab:</u> Chapter 3	
June 9	Levels of Measurement, Measures of Central Tendency and Dispersion (Variation) <i>Guest speaker Josh Quan from Tisch Library</i>	Pollock Chapter 2 <u>Lab:</u> Guest Speaker	
June 16	The Normal Distribution	Pollock Chapter 3 & 6 (pp. 122-144 only) *Read Pollock first, then Witte Witte Chapters 10 & 11 (on Trunk) <u>Lab:</u> Chapter 2	HW 1: Descriptive Statistics
June 23	Hypothesis Testing	Readings are the same as last week' <u>Lab:</u> Holcomb Chapter 12 BRING DATASETS TO LAB	HW 2: Dataset Description HW 3: The Normal Distribution Exam 1 Distributed
June 30	The t Distribution, Comparing Two Sample Means - PART 1	Witte Chapters 13-15 (on Trunk) Gomez, Baur, Hill, & Georgiev (2015) <u>Lab:</u> Holcomb Chapters 13-14 (on Trunk) BRING DATASETS TO LAB	

July 7	The t Distribution, Comparing Two Sample Means - PART 2	<u>SAME AS LAST WEEK:</u> Witte Chapters 13-15 (on Trunk) Gomez, Baur, Hill, & Georgiev (2015) <u>Lab:</u> Holcomb Chapters 13-14 (on Trunk) BRING DATASETS TO LAB	Exam 1 Due
July 14	Correlation & Regression	Pollock Chapter 8 (pp. 182-199 only) <u>Lab:</u> Pollock Chapter 8 & 9 (pp. 183-189 only)	HW 4: Two Sample Comparisons
July 21	Multiple Regression	Pollock Chapter 8 (pp. 199-205) Ord, Mitchell & Pearce (2013) <u>Lab:</u> On Trunk	HW 5: Regression
July 28	ANOVA <i>Exam 2 Distributed</i>	Witte Chapters 17 & 18 (on Trunk) <u>Lab:</u> Holcomb Chapter 15 (on Trunk)	
August 4	Final paper preparation		Exam 2 Due Final Paper Must be uploaded to Trunk by: 8/6/2015 @ 8pm

Additional Important Course Information

1. Missed exams, papers, and absences: Because it is extremely difficult to evaluate the validity of excuses for missing assignment deadlines, the general policy will be to permit NO LATE EXAMS OR PAPERS. Please notify me as soon as it is apparent that an assignment due date will be missed. Failure to notify me may result in a 0 averaged into your final grade.

ALL ASSIGNMENTS ARE DUE BY THE DAY INDICATED ON THE SYLLABUS. **Assignments will not be accepted via email.** It is unfair to classmates who push themselves to complete their work by the due date for you to turn your assignment in late. You must hand in a hard copy of your assignment; electronic versions will not be accepted. For each day an assignment is late, you will lose 10%. After two days, the assignment will not be accepted.

If you are going to miss a class, you must notify the instructor by e-mail ahead of time. In some circumstances (sickness, family emergency), your absence may be “excused” and points will not be deducted from your class participation grade. If I am not informed of your absence ahead of class it will not be excused.

2. Academic Integrity: Academic integrity is a fundamental value at Tufts University. Such integrity rests on several principles. First, that academic work is represented truthfully as to its sources and accuracy; and that academic results are achieved by fair and authorized means. Academic misconduct occurs when either one of these principles are knowingly violated. Consequences of academic misconduct range from a failing grade on the assignment, to failure in the course, to recommendation to the Dean of Students for suspension or expulsion.

Students are encouraged to work together during labs and to discuss questions on homework assignments. However, it must be evident that each student completed his/her own assignment independently. **STUDENTS ARE NOT PERMITTED TO WORK TOGETHER ON EXAMS.**

3. Student-Student and Student-Faculty Relations: To maximize the quality and effectiveness of students’ learning experiences, all interactions among students and faculty should be collegial and conducted in a manner that reflects the highest standards of the profession. Problems regarding student-faculty relations should be directed to one or more of the following faculty members: the program director, the department chair, or the assistant dean.