

UEP 254 Quantitative Reasoning Spring 2009

Professor: Mary Davis

Office: 97 Talbot Ave, 2nd Floor

Phone: 617-627-4719

Email: mary.davis@tufts.edu

Office hours: Tuesdays 3-4:30pm, or by appointment

Lab TA: Eugen Taso

Email: eugen.taso@tufts.edu

Lab Group A: Tuesday, 4:30-5:45pm, Eaton 208

Lab Group B: Thursday 4:30-5:45pm, Eaton 208

Lab Group C: Thursday 6-7:15pm, Eaton 208

Class TA: Sherise Smith

Email: sherise.smith@tufts.edu

Office Hours: TBD (4 hours total)

Meeting Schedule: Mondays/Wednesdays 10:30-11:45am, Anderson 211

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, and methods of data analysis. Students will gain proficiency in a statistical software package, namely STATA, as well as explore alternatives such as SPSS. The goal of this course is to promote statistics literacy among students, including the ability to fully comprehend academic journal articles and 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.

Course Textbook and Software

Statistics, 5th Edition 2006, by Johnson and Bhattacharyya, is the required textbook for this course and can be purchased in the university bookstore or online. The course will use the statistical software STATA 10, which is available on the lab computers in Eaton. Copies of the software are can be purchased through the university for as low as \$48 and I encourage students to consider that option (<http://www.stata.com/order/new/edu/gradplans/gp-campus.html>).

Course Website

A 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 <http://blackboard.tufts.edu>. Follow the instructions on the website for Tufts students to obtain your username and password.

Grading Policy

Grades will be based on two in-class midterms (worth 20% each) and a take-home final (worth 40%), as well as 12 homework sets (worth 20%). The in-class midterms will take place during the scheduled class periods and the exams will **not** be cumulative. The assignments must be submitted as a hardcopy in class on the day in which they are due (without exception) and the lowest two scores will be dropped. You are urged to join a study group and work on homework sets together. However, please submit answers that reflect your own understanding of the problem.

Course Outline

Date	Topic	Reading*	Assignment Due
January 14	Finding and Collecting Data	Chapter 1	
January 19	MARTIN LUTHER KING DAY – NO CLASS		
January 21	Descriptive Statistics	Chapter 2	
January 26	Descriptive Statistics	Chapter 2	
January 28	Probability	Chapter 4	
February 2	Probability	Chapter 4	Homework Sets #1 and #2 Due
February 4	Probability Distributions	Chapter 5-6	
February 9	Probability Distributions	Chapter 5-6	Homework Set #3 Due
February 11	Finish material and review for Midterm 1		Homework Set #4 Due (Friday 2/13)
February 16	PRESIDENT’S DAY – NO CLASS		
February 18	IN-CLASS MIDTERM 1		
February 23	Central Limit Theorem	Chapter 7	
February 25	Confidence Intervals and Hypothesis Testing	Chapter 8-9	
March 2	Confidence Intervals and Hypothesis Testing	Chapter 8-9	Homework Set #5 Due
March 4	Confidence Intervals and Hypothesis Testing	Chapter 8-9	
March 9	Finish material and review for Midterm 2		Homework Sets #6 and #7 Due
March 11	IN-CLASS MIDTERM 2		
March 16	SPRING BREAK – NO CLASS		
March 18			
March 23	Two-Sample Comparisons	Chapter 10	
March 25	Two-Sample Comparisons	Chapter 10	
March 30	Correlation	Chapter 3	Homework Set #8 Due
April 1	Correlation	Chapter 3	
April 6	Simple Linear Regression	Chapter 11 and pp. 104-107	Homework Set #9 Due
April 8	Simple Linear Regression	Chapter 11 and pp. 104-107	
April 13	Multiple Linear Regression	Chapter 12	Homework Set #10 Due
April 15	Multiple Linear Regression	Chapter 12	
April 20	PATRIOT’S DAY – NO CLASS		
April 22	Nonparametric Statistics	Chapter 15	Homework Set #11 Due
April 27	Finish material and review for take-home final		Homework Set #12 Due
May 4	TAKE-HOME FINAL DUE		

Labs

Labs will take place in Eaton 208 and it is a requirement of the course that you enroll in one of the three sessions and attend regularly. During the labs you will learn to use STATA and acquire the tools you need to complete the weekly homework assignments. Although the labs will be directed by the lab TA, the format is specifically designed by the instructor to coincide with the in-class discussions and homework sets and regular attendance is essential. The use of statistical software will not be explicitly addressed during the in-class lectures, and the labs are not designed as a review of materials covered in class. **Therefore, you must plan to attend both the in-class lectures and the labs in order to successfully complete this course.**

Labs Schedule

Week	Topic
January 12	NO LAB
January 19	Introduction to STATA
January 26	Descriptive Statistics
February 2	Inputting Data
February 9	Probability
February 16	NO LAB
February 23	NO LAB
March 2	Hypothesis Testing
March 9	NO LAB
March 16	NO LAB
March 23	Two-Sample Comparisons
March 30	Correlation
April 6	Regression I
April 13	Regression II
April 20	Nonparametric Statistics
April 27	NO LAB

Homework Sets*

	Due	Topic
#1	February 2	Descriptive Statistics I
#2	February 2	Descriptive Statistics I
#3	February 9	Probability
#4	February 13	Probability Distributions
#5	March 2	Central Limit Theorem
#6	March 9	Hypothesis Testing I
#7	March 9	Hypothesis Testing II
#8	March 30	Two-Sample Comparisons
#9	April 6	Correlation
#10	April 13	Regression I
#11	April 22	Regression II
#12	April 27	Nonparametric Statistics

*The lowest two HW scores will be dropped