

Economics 83A, Summer 2009

STATISTICS AND ECONOMIC ANALYSIS

Instructor: Xia Meng

Overview: This course is designed to provide a working knowledge of the analytical tools of probability and statistics used in economic analysis. Some of the topics that we will cover include descriptive statistics, probability theory, the Central Limit Theorem, confidence intervals, hypothesis testing and an introduction to regression analysis.

Course Meeting Times: Monday, Tuesday, Thursday 1:45-4:15pm

Office Hours: Thursday 9:00-12:00am, PhD room

or by appointment

Instructor Email: xiameng@brandeis.edu

Textbook: The required textbook for this course will be: David R. Anderson, Dennis J. Sweeney, and Thomas A. Williams, *Statistics for Business and Economics*, 10th edition
(It is fine if you have the 9th edition on hand)

Course Requirements and Grading Policy: Participation in all lectures, the completion of course assignments, midterm and final exam. The exams will be closed book, closed note. Grading in the course will be based on the following 3 parts:

1. Assignments (30% of the grade) — I will assign 3 assignments. You are required to turn in all of these exercises and do these exercises on your own. Assignments will be due in class (due dates are given in the syllabus). Generally no late assignments expected .

Assignment #1, assigned Thur, Jun. 4, due Mon, Jun. 8.

Assignment #2, assigned Thur, Jun. 18, due Mon, Jun. 22.

Assignment #3, assigned Thur, Jun. 25, due Mon, Jul. 2.

2. Midterm exam (30% of the grade)—There will be one in-class midterm which covers all course content taught before the midterm exam.

3. Final exam (40% of the grade)— The final will cover all course content taught after the midterm and will be based on the textbook, lecture notes and problem sets.

There is no scheduled make-up midterm or final exam. If you have any conflicts with any of the exams, please let me know ASAP. If you miss an exam without an acceptable legal document/reason (for example: a written certificate from a medical or legal authority), no makeup exam will be given.

Additional Requirements: 1) You will be required to purchase a *NON-PROGRAMMABLE calculator* for this class. This will be the **ONLY** calculator that will be allowed for use in the exams. There will be no exceptions to this rule. This means that you may **NOT** bring in a programmable graphing calculator (whether or not you can show that there are no stored programs). Your calculator should be able to perform square roots, but nothing more complicated will be necessary. (In general, the \$5 calculator available at a drugstore will suffice.) If your calculator does not meet these specifications during an exam, you will have to do without a calculator for the exam. 2) *Stata will be introduced as a convenient software to deal with data, and required in final exam.*

Academic Honesty: You are expected to be honest in all of your academic work. Potential sanctions include failure in the course and suspension from the university. If you have any questions about my expectations, please ask.

Disability Information: If you are a student with a documented disability at Brandeis University and if you wish to request a reasonable accommodation for this class please see me immediately. Please keep in mind that accommodations are not provided retroactively.

LATTE: problem sets, midterm and final will be posted on LATTE, as well as the solutions. Course announcements will also be posted.

COURSE OUTLINE

(You are encouraged to read the chapters listed for each lecture before class, although the course will not cover all the content of those chapters. Details on readings will be updated when the course progresses.)

	Topics
(Jun. 1, M)	Chapter 1 (Overview of business and economic data); Chapter 2 (Descriptive statistics: Tabulation and Graphical Presentation); Chapter 3 (Descriptive Statistics: Mean, Median, Mode, Variance, Standard Deviation, Covariance, Coefficient of Correlation)
(Jun. 2, T)	Chapter 4 (Introduction to Probability: Experiments, Combinations, Permutations, Probability of an event, Venn Diagram, Conditional Probability)
(Jun. 4, Th) <i>problem set 1 assigned</i>	Chapter 4 (Bayes' Theorem); Chapter 5 (Discrete probability distributions: Random Variables, Binomial Distribution)
(Jun. 8, M) <i>problem set 1 due</i>	Chapter 5 (Poisson Distribution); Chapter 6 (Continuous probability distributions: Uniform Distribution)
(Jun. 9, T)	Chapter 6 (Normal Distribution); Chapter 7 (Sampling and Sampling Distribution: Random sampling, Point estimation)
(Jun. 11, Th) <i>sample test posted</i>	Midterm Review; Stata Session I
(Jun. 15, M)	Chapter 7 (Properties of point estimators, Cluster Sampling, Stratified Random sampling); Midterm Exam
(Jun. 16, T)	Chapter 8 (Interval Estimation: Interval estimation of a population mean with known and unknown Variance, interval estimation of a population proportion, Confidence interval, Optimal sample size)
(Jun. 18, Th) <i>problem set 2 assigned</i>	Chapter 9 (Hypothesis Testing: Null and Alternative Hypothesis, Level of significance, Type I and Type II errors, One-Tailed and Two-tailed tests, Application Examples)
(Jun. 22, M) <i>problem set 2 due</i>	Chapter 9 (the t distribution, Optimal sample size for hypothesis testing; Application Examples)
(Jun. 23, T)	Chapter 10 (Differences between means and proportions: Interval estimation and hypothesis testing for difference between population means)
(Jun. 25, Th) <i>problem set 3 assigned</i>	Chapter 14 (Simple linear regression: Least Squares Method, t-test, F-test)
(Jun. 29, M)	Chapter 15 (Multiple Regression)
(Jun. 30, T)	Final Review, Stata Session II
(Jul. 2, Th) <i>problem set 3 due</i>	Final Exam (NOTE: the time is 09:00 AM - 12:00 PM)