**BOSTON COLLEGE**
**DEPARTMENT OF ECONOMICS**

EC 151
Introduction to Statistics
Fall 2001
Office Hrs: TBA

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**Course Description:**
This is an introductory course in statistics. The course is designed to teach students to learn how to analyze data using various statistical tools. Students are expected to develop both intuitive understanding and technical ability in interpreting data-based information.

**Text:**
Anderson, Sweeney and Williams, Statistics for Business and Economics ($8^{th}$ edition)

**Course Requirements:**
Quizzes (20%) There are a total of 5 quizzes. Only four best quizzes will be counted.
Two Midterms (40%) on Oct 4 and Nov 8
One Final (40%)

**There will be no make-up exams or make-up quizzes.** Please make sure you have no scheduling conflict with the exam and quiz dates.

A total of 10 problem sets will be distributed throughout the course. Students are not required to hand in their work on problem sets. However, in preparation for quizzes and exams, working on these problem sets is highly recommended.

Students are encouraged to use computers to develop their technical skills in working with data. Excel is the program that students will become accustomed to during this class.

**Academic Integrity:**
Students are expected to do their own work on problem sets, quizzes and exams. You may consult your fellow students on problem sets but you are responsible to write your own answer. It is important that you make sure you are familiar with the sections on "Academic Honesty" in the Undergraduate Catalog and act accordingly.

# Syllabus

| Dates | Topics | Readings |
|---|---|---|
| Sept. 4 | Introduction, Descriptive Statistics: Tabular /Graphical | Ch. 1& 2 |
| Sept. 6 | Measure of Location and Variability | Ch. 3.1-3.3 |
| Sept. 11 | Covariance, Correlation, and Weighted Mean | Ch. 3.4-3.6 |
| Sept. 13 | **Quiz 1: ch.1-3**<br>Probability: Permutations, Combinations | Ch 4.1-2 |
| Sept. 18 | Probability: Basic Rules, Conditional Probability | Ch. 4.3-4.4 |
| Sept. 20 | Bayes' Theorem | Ch. 4.5 |
| Sept. 25 | **Quiz 2: ch. 4**<br>Random Variables, Discrete Probability Distributions, Expected Value, Variance | Ch 5.1-5.3 |
| Sept. 27 | Binomial & Poisson Probability Distribution | Ch 5.4-5.5 |
| Oct. 2 | Review Session | Ch. 1-5 |
| Oct. 4 | **First Midterm** | Ch. 1-5 |
| Oct. 9 | Uniform & Normal Probability Distribution | Ch. 6.1-6.2 |
| Oct. 11 | Approximation of Binomial, Exponential Distribution | Ch. 6.3-6.4 |
| Oct. 16 | **Quiz 3: Ch. 6**<br>Sampling, Point Estimation | Ch. 7.1-7.4 |
| Oct. 18 | Sampling Distributions | Ch. 7.5-7.7 |
| Oct. 23 | **Quiz 4: Ch. 7**<br>Interval Estimation: Large and Small Sample Cases | Ch. 8.1-8.2 |
| Oct. 25 | Determining the sample size<br>Interval Estimation of a Proportion | Ch 8.3-8.4 |
| Oct. 30 | Null and Alternative Hypotheses<br>Type I and Type II Errors | Ch. 9.1-9.2 |
| Nov. 1 | One-tailed and Two-tailed Tests, Small Sample Test | Ch 9.3-9.6 |
| Nov. 6 | Review Session | Ch. 9.5-9.6 |
| Nov. 8 | **Second Midterm** | Ch. 6-9 |
| Nov. 13 | Simple Linear Regression, Least Squares Method | Ch 14.1-14.2 |
| Nov.15 | Coefficient of Determination, Model Assumptions | Ch. 14.3-14.4 |
| Nov. 20 | Testing for Significance, t Test, F Test | Ch. 14.5 |
| Nov. 27 | Prediction, Residual Analysis | Ch. 14.6 – 14.9 |
| Nov. 29 | **Quiz 5: Ch. 14**<br>Multiple Regression | Ch. 15 |
| Dec. 4 | Model Building | Ch. 16 |
| Dec. 6 | Forecasting | Ch. 18 |
| Dec. 14 | **Final Exam** | Ch. 14-16, 18 |