Statistics   Soner Tunay
EC 151.03-04   Carney 33B, x2-8707
Fall 1996   Office Hours:
                                        Mon.10-11&Wed.10-11

This is an introductory course in statistics. Contrary to some belief, Statistics is neither simple-minded formula crunching nor pure mathematical manipulation. Instead, statistics is the science of collecting, summarizing and interpreting the data. In this course you will learn to apply statistics to the real life problems. Statistical concepts will be taught with applications in mind. The course has three major sections: Descriptive statistics, probability and distributions and statistical inference.

Text: Paul Newbold: Statistics for Business and Economics, forth ed., Prentice Hall, 1995. (required)

Course requirements: Quizzes(30%), mid-term exam(30%), final exam(40%).

Course organization and expectations: The class meets three times a week (Mon., Wed., Fri. 10-11 or 11-12). There will be problem sets after each major subject. I will not grade them, but your work will be determinant in the border cases. I will not consider the ones you failed to return on time. I encourage small group study on problem sets as long as everyone contributes to the problem solving equally. I believe, teamwork improves your abilities to share ideas and learn from others. Naturally, you will be evaluated from your own work on the exams.

Every new topic requires the previous ones to be understood and digested well. In order to motive this, there will be many **random** quizzes. So, you are expected to be ready to take a short quiz in any time. If you fail to take the quiz, you will get a zero for that one, and there will not be any make-ups. I will drop the lowest quiz grade.

The mid-term exam will be after we cover the Sampling Distribution, probably the third week of October. There is no need to tell when the final exam will be as you will learn to take good guesses towards the end of the semester.

The structure of the course will follow the text book closely. I strongly encourage you to read the textbook for the material covered in the class. I also believe that a quick read of the topics before each class helps you to learn the material faster.

Syllabus

Introduction to Statistics (Ch. 1)
Descriptive Statistics (Ch. 2)
 i) Measures of central tendency
 ii) Measures of dispersion
 iii) Graphical descriptions: Histograms
Probability (Ch. 3)
 i) Random Events
 ii) Probability and its postulates
 iii) Bayes' Theorem
Discrete Random Variables and Probability Distributions (Ch. 4)
 i) Random Variables
 ii) Expectations for discrete random variables
 iii) Binomial distribution
 iv) Poisson distribution
Continuous Random Variables and Probability Distributions (Ch. 5)
 i) Continuous random variables
 ii) Expectations for continuous random variables
 iii) The normal distribution
 iv) The central limit theorem
Sampling Distribution (Ch. 6)
 i) of a sample mean
 ii) of a sample proportion
 iii) of a sample variance
Point Estimation (Ch. 7)
 i) Unbiasness and Efficiency
 ii) Choice of point estimators
Interval Estimation (Ch. 8)
 i) Confidence Intervals
 ii) Student's t distribution
 iii) Interval estimation
Hypothesis Testing (Ch. 9)
 i) Various tests
Linear Regression (Ch. 12)
 i) Correlation
 ii) Least squares estimation
 iii) Confidence intervals and hypothesis tests