

Boston College
Department of Economics

EC.151.09 and EC.151.10 Statistics
Fall 1999

Prof. Maria Laura Parisi
Carney 33B
Office hours: T-Th 11-12:00
better if by appointment
E-mail: parisimb@bc.edu
Course Web:
www2.bc.edu/~parisimb/Mary.html

Syllabus

Warnings:

This course aims at providing the basic tools of a much wider science called Statistics. With these tools you will be able to give simple qualitative and numerical answers to problems requiring decision-making or evaluation, provided that observations about the phenomena of interest are available. The book adopted is an extensive manual, dealing with rules, formulas and examples, which will be, at least in part, covered in class. You are required to read the book and solve the problem sets, along the semester. I may suggest not to throw the book away at the end of this course, because you will have to solve lots of statistical problems whether working for a company or running experiments in bio labs and much else, in the future (!)

The tentative syllabus below gives approximately what will be covered in class along the next three months. It will be updated after the midterm. Please, be flexible with dates and topics, because they will change according to the class needs and time availability. Be prepared to cover extra topics at my discretion or to change the day in which I will go through some of those topics in class. You will always be informed in advance about changes in this syllabus.

From time to time I might decide to give review sessions during class-time about exercises found in problem sets and/or in exams. These and their date are at solely my discretion, according to my perception of the class needs.

Note the days of examination. The final exam's date has still to be determined. You will be informed well in advance. The **midterm exam** counts for 35% in the total grade. The **final exam** counts for 50%. The **quizzes** count for 15%. You might have 3/4 quizzes (or case studies) to solve along the semester. Attendance to all quizzes is required if you want that 15% counted in your final grade.

Quizzes consist of exercises to solve using your logic, book's formulas and calculations. The exercises are similar to those given in tests. Case studies require the use of the computer (any software with Statistical tools is accepted, i.e. Stata, StataQuest, Excel, etc.), elaboration of data and sensible answers.

Text: Anderson D., Sweeney D. and T. Williams: *Statistics for Business and Economics*, 7th edition, 1999

Syllabus:

Date	Topics	Chapters
September 7	Definitions; absolute frequency	1
9	Frequency distribution; relative frequency; cumulative frequency distribution; histogram; stem-and-leaf display	2
14	Crosstabulation; mean; median; mode; percentiles; quartiles	2/3
16	Measures of variability	3
21	Measures of relative location and detecting outliers; measures of association between two variables	3
23	Correlation coefficient; weighted mean and variance	3
28	Counting rules; assigning probabilities to experimental outcomes	4
30	Events and their probability; basic relationships	4
October 5	Conditional probability; Bayes' theorem	4
7	Random variables; expected value and variance	5
12	Binomial; Poisson distribution	5 (skip pp.202-203)
14	Midterm Exam	All material above
19	Uniform; normal distribution	6
21	Standard normal; normal approximation of binomial	6 (skip pp.236-239)
26	Random sampling; point estimation	7
28	Central limit theorem ; sampling distribution of a proportion	7 (skip pp.279-284)
November 2	Interval estimation in large sample with σ known and unknown; small sample case	8
4	Null and alternative hypotheses; type I and II errors; one-tail test in large sample and small sample	9
9	Two-tails test in large sample and small sample	9
11	Population proportion; probability of type I and II errors; sample size	9
16	Estimation of difference in means of independent samples	10
18	Hypothesis tests; matched samples	10

23	test of independence; contingency tables	12
25	No class	
30	regression model; the least square method; coefficient of determination	14
December 2	MSE; t-test; prediction	14
17/18	Final Exam	All course material