

Boston College
Department of Economics

EC151- Statistics for Business and Economics
Richard McGowan, S.J.

Spring, 1998
Tues, Thurs: 10:30
1:30

Text: Statistics for Business and Economics, Anderson, Sweeney & Williams, 6th ed.
(West Publishing)

Office: Fulton 226

Phone: 552-3474

Office Hours: Tu: 8:30 - 10:15, 3:00 - 4:30, Th: 8:30 - 10:15, 3:00 - 4:30

If you can not meet me at any of these times, please make an appointment. The three graduate assistants will also have office hours every day which will be posted. The ADC (the Academic Development Center in O'Neill) also has tutors available for you to consult.

Introduction:

Welcome to the wonderful world of Statistics! I'm sure that you have heard much about Statistics (most of which makes the subject as welcomed as a bookie to Fr. Leahy's office). You will not be a theoretical statistician at the end of this course but, hopefully, you will appreciate the power of statistical thinking as well as its limitations. Second, you will also be introduced to how statistics is used in the Economics and other business disciplines such as Accounting, Finance and Marketing. Hence, the examples and cases that you will do during the semester will be drawn from these disciplines. Hopefully, this "application" orientation will make your study of statistics more enjoyable (& fun) as well as preparing you for your "forays" into the Economics and the Management Curriculum.

Topics:

The field of statistics can be divided into two parts (unlike the BC campus!). The first part is called descriptive statistics and it involves methods of displaying data as well as calculating measures which describe data, i.e. the mean, mode, median and standard deviation, as well as learning the basics of probability. The other major area of statistics is referred to as inferential statistics. In this part of the course, the chief "inferences" we will make involve what we "infer" about a population after we take a sample from that population. These inferences are based on probability theory and hence, we need to examine probability as well as various probability distributions such as the Binomial, Poisson, Normal, student "t" test, and Chi-Square. These distributions will be extensively utilized in Hypothesis Testing and Regression Analysis. All of this sounds like Greek now (and we will use lots of Greek symbols and letters!) but, by the end of the semester, I'm sure that you'll have mastered these key elementary concepts of statistics.

Attendance:

Obviously, since these classes will be fairly large, I will not be taking attendance. From past experience, however, I would strongly urge you not to cut class. This material has a way of causing "the twisting of vital organs" if you don't keep up with the work. **Please make sure that you ask questions in class.** You can be sure that I will be asking you questions. You will receive name cards so that I can get to know all of you which I intend to do by midterm. Just remember if you don't know what is going on, there are 50 other people in class just as confused as you are. I am only too happy to answer your questions. Typically, in the first part of the class, I will present new material while in the second part of the class I will go over assigned problems which again I would highly advise to try and work out on your own first. The solution guide for your textbook is on reserve in O'Neill so that you can check your answers for your homework problems.

Grading Procedure:

- 1.) There will be quizzes as well as case studies which will account for 25% of the final grade.
- 2.) Two hourly exams: 40% of the final grade
- 3.) Cumulative Final exam: 35% of the final grade

N.B. All exams and quizzes will be open notes and book. There will also be a back-test file which is kept on the reserve desk at O'Neill so that you can practice the type of question which you will be examined. **Please take the tests, quizzes and hand in the cases on time!** There will no make-up quizzes. Any excuses ought to be able to bring both Hilary and Newt to tears.

Grade Equivalents

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|-----------------|--------------|------------------|
| A = 93 or above | B- = 80 - 77 | D+ = 64 - 62 |
| A- = 92 - 90 | C+ = 76 - 74 | D = 61 - 57 |
| B+ = 89 - 86 | C = 73 - 69 | D- = 56 - 54 |
| B = 85 - 81 | C- = 68 - 65 | F = 54 and under |

Tentative Schedule for topics and exams:

| <u>Topic</u> | <u>Classes of</u> | <u>Chap. in text</u> |
|---|-------------------|----------------------|
| Descriptive Statistics | Jan13,15 | 1, 2, 3 |
| Probability Theory Bayes' Theorem | Jan 20,22,27 | 4 |
| Concept of a Probability Distribution: Discrete & Continuous | Jan 29, Feb 3 | 5.1, 5.2 , 5.3 |
| Probability Distributions: Binomial, Poisson | Feb. 5,10,12 | 5.4 , 5.5 |

EXAM 1: Tues. Feb. 17 -CHAPS. 1, 2, 3, 4, 5

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|--|---|-------|
| Normal, Sampling, Confidence Intervals, Sample Size, Proportions, "t" distribution | Feb. 19, 24, 26 | 6,7,8 |
| Hypothesis Testing (Single population) (Type II error) | March 10, 12 March 17, 19 March 24, 26,31 | 9 |

EXAM 2 : Thurs, April 2- CHAPS. 6, 7, 8,9

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| Hypothesis Testing (Two populations parameters) | April 7,14 | 10 |
| Chi-Square Distribution | April 16 | 12 |
| Simple Regression | April 21,23, 28 | 14 |

FINAL EXAM: May 6 at 4:30 in the Rat