

Methods of Stats

22-QA-721-001

Professor: Norman T. Bruvold, PhD

Office: 429 Lindner

Phone: 556-7105

Fax: 556-0979

Fall 2009, Lindner 216

Office Hours: Wednesday

2:00-3:30 and by appt.

email: Norman.Bruvold@uc.edu

Text: Reference: Snedecor, George W. and William G. Cochran, 1989. Statistical Methods, Eighth Edition, Iowa State University Press, Ames, IA.

Date	ChaptersS&C	Topics
Sept. 23	1&2	Introduction, Frequency Distributions.
Sept. 28	2 & 3	The Mean and Standard Deviation.
Sept. 30	4	The Normal Distribution, a Continuous Distribution.
Oct. 5	5	Introduction to Tests of Hypotheses with Normality.
Oct. 7	5	Single Sample Tests of Hypotheses Assuming Normality.
Oct. 12	6	Comparisons of two Independent or Dependent Samples.
Oct. 14	6	More on Comparisons of Two Samples.
Oct. 19	7	The Binomial Distribution, a Discrete Distribution.
Oct. 21	7	More Binomial and Intro to other Discrete Distributions.
	Project	Project Discussion and Midterm Review.
Oct. 26	** Midterm	In Class Exam on Ch's 1 through 7 S&C as amended.**
Oct 28	8	Nonparametric Methods for 'Non-Normal' Populations.
Nov. 2	8	More on Nonparametric Methods.
Nov. 4	9	Introduction to Simple Linear Regression.
Nov. 9	9	More on Simple Linear Regression.
Nov. 11	***Veterans	Day No Class -- University Offices Closed ***
Nov. 16	10	Correlation and the Correlation Coefficient.
Nov. 18	10	More on Correlation and the Correlation Coefficient.
Nov. 23	11	Analysis of Frequencies in One-Way Classifications.
	Project	Review
Nov. 25	11	Analysis of Frequencies in Two-Way Classifications.
Nov. 30	12	Introduction to One-Way Analysis of Variance.
Dec. 2	12	More on One-Way and Some Two Way ANOVA.
Dec. 7	*** *Final	Comprehensive 4:00-6:00 p.m. Monday. ****

(About 60% of the content of the Final comes from the material covered since the Midterm.)

Grading Structure:

Mid Term Exam	35%
Final Exam	45%
Outside Assignments and Class Participation	9%
Other Verbal Assignment	1%
Project	<u>10%</u>
TOTAL	100%

Comments Related to this Course

What is Statistics?

Statistics is a scientific discipline consisting of procedures for collecting, describing, analyzing, and interpreting numerical data. One of the main objectives of statistics is to provide a set of procedures that enables us to make inferences, predictions, and decisions about the characteristics of a population of data based on only a part of the population. These procedures could be used for either deductive or inductive scientific inquiry.

Based on the statistical procedures used the field of statistics can be divided into two branches, descriptive statistics and inferential statistics. Descriptive statistics consists of procedures for (1) tabulating or graphing the general characteristics of a set of data and (2) describing some characteristics of this set, such as measures of central tendency or measures of dispersion. In many descriptive studies data are presented in a convenient, easy-to-interpret form, usually as a table or graph. Inferential statistics consists of a set of procedures that helps us make inferences and predictions about a whole population based on information from a sample of the population. The application of inferential statistics can help us estimate the magnitude of any estimation error that might be made. Inferential statistics depends on sampling and probability theory.

Based on techniques of scientific inquiry the field of statistics can also be divided into two parts, deductive statistics and inductive statistics. In deductive statistics, we try to deduce properties of a given sample based on known characteristics of the population. In inductive statistics, we reverse the procedure; we infer properties of a population based on observations of a selected sample of the population. The form of application determines whether a procedure is used for inductive or deductive purposes

Course Goals

In this course you should be exposed to a number of procedures of descriptive and inferential statistics and a number of techniques of deductive and inductive statistics. The flow is generally from descriptive statistics to inferential statistics and from deductive statistics to inductive statistics as indicated by the chapter headings and content. Exposure to powerful statistics software through the use of SAS or SPSS statistical software will begin your development for future computer-aided data analysis, interpretation, and design, as well as integration of sophisticated statistical software with decision support systems. You will also begin to evolve a consulting style that will aid you in problem definition, formulation of methodological procedures, data collection, data analysis, and communication of decision supporting results. And as a bonus you should begin to develop the means to evaluate and identify misapplications of statistical methods in apparently persuasive presentations.

Communication Styles

In this course we will use four communication styles indicated by the following: (1) technical analyst, (2) technical analyst immediate management, (3) technical general management, and (3) general management. Be open to practicing these styles and be prepared to use these styles when required.