ACADEMIC AFFAIRS

Course Number: STAT 142   Department: Mathematics

Course Title: Statistics 1   Semester: Spring   Year: 1997

Objectives/Competencies

Course Objective	Competencies
The objective of this course is to have the student develop an understanding of, and computational skill with, the basic techniques, language, and logic of Statistics and Quality Control. 1. Organizing data.	1. Define and explain the terms and concepts of populations, sample and types of sampling strategies, and data types. 2. Create and interpret the various types of charts and graphs. 3. Create and interpret frequency, relative frequency and cumulative frequency distributions.
2. Averages and variation.	1. Understand the concept of central tendency. 2. Understand the concept of variation and Chebychev's theorem. 3. Define, find and use appropriately the measures mode, median, mean, standard deviation, variance, range, quartile, and percentile for populations or samples and for raw or grouped data.

Course Objective	Competencies
3. Regression and Correlation.	1. Define and be able to understand the appropriate use of regression and correlation.
4. Elementary probability theory.	1. Use the basic ideas and formulas of Classical Probability for simple and compound events. 2. Use basic counting techniques-multiplication rule, permutations, combinations.
5. The binomial distribution.	1. Define and understand the concept of a random variable. 2. Create a probability distribution for a discreet random variable. 3. Find the mean (expected value) and standard deviation of a random variable. 4. Find probabilities using the binomial distribution.
6. Normal distributions.	1. Create and interpret control charts. 2. Know the characteristics of the normal distribution. 3. Find and utilize probabilities using the normal distribution.
7. Introduction to sampling distributions.	1. Know and be able to apply the central limit theorem. 2. Find probabilities using a sampling distribution.
8. Introduction to estimation.	1. Find and interpret confidence intervals for the population mean.
9. Hypothesis testing involving one population.	

Course Objective	Competencies
	1. Know all the terminology of hypothesis testing. 2. Understand the process and logic of hypothesis testing. 3. Utilize hypothesis tests in research situations to test about population means.