

Course Objective Development Form

Course Number: STA 2023

Course Title: Elementary Statistics

Initiator(s) of Course Objectives: Bob Hervey, Sherry Sippel

Date: 1/2/2005

Signature(s):

Cluster 3

Date of Cluster Approval: 1/2/2005

Typed Name and Signature of Cluster Chair: Greg Henderson

Course Objectives:

1. To understand the fundamental concepts of statistics to include the nature of data and the collection of data through experimental design and sampling techniques.
2. To understand the methods for organizing and describing sets of data by:
 - a. constructing and interpreting histograms, bar charts, box plots, and stem and leaf plots from a given data set.
 - b. calculating and interpreting the following measures of central tendency, dispersion, and relative standing from a given data set:
 - i) Mean, median, mode
 - ii) range, standard deviation, variance
 - iii) percentiles, quartiles, z-scores
3. To understand and apply the principles of probability by:
 - a. constructing sample spaces to find probabilities of events
 - b. computing probability using the addition, multiplication, conditional, and complement rules
4. To understand and apply the fundamental concepts of random variables and probability distributions by:
 - a. understanding the characteristics of discrete and continuous probability distributions
 - b. constructing a probability distribution for a discrete random variable
 - c. calculating the probability of an event for a random variable having a normal distribution.
 - d. understanding sampling distributions and applying the Central Limit Theorem
5. To understand and apply the fundamental concepts of statistical inference by:
 - a. constructing and interpreting confidence intervals for population parameters
 - b. performing and interpreting hypothesis tests for population parameters

6. To understand and apply the basic principles of linear correlation and regression by:
 - a. constructing and interpreting scatterplots
 - b. computing and interpreting the linear correlation coefficient
 - c. computing and applying the linear regression equation to make predictions
7. To become familiar with the use of technology such as graphing calculators and statistical software applications as applied to the above objectives.