CHINO VALLEY UNIFIED SCHOOL DISTRICT

INSTRUCTIONAL GUIDE

PROBABILITY AND STATISTICS

Course Number	5127
Department	Mathematics
Prerequisites	Successful completion of Algebra II
Length of Course	1 year/2 semesters
Grade Level	10-12
Credit	5 units per semester/10 total credits of Math
Repeatable	No
Meets A-G Requirements	
Board Approved	December 7, 2006

Description of Course - The curriculum for this course is designed to acquaint the student with the basic ideas and language of statistics including such topics as: descriptive statistics, correlation and regression, basic experimental design, elementary probability, binomial and normal distributions, and estimation and test of hypotheses. Mastery of this academic content will provide students with a solid foundation in probability and facility in processing statistical information.

Rationale for Course - The goal of Probability and Statistics in high school is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Board Policy 6146.1 requires high school students in the Graduating Class of 2008 and beyond to have successfully completed 30 units of mathematics in order to receive a diploma. A Statistics course at a non-Advanced Placement level provides students an additional year of higher level mathematics and an option to the Advanced Placement Statistics course. NOTE: This course does NOT prepare students to take the College Board's Advanced Placement Exam in Statistics.

This course of study has been prepared in conjunction with the California State Framework for Mathematics.

CALIFORNIA STATE CONTENT STANDARDS FOR PROBABILITY AND STATISTICS

This discipline is an introduction to the study of probability, interpretation of data, and fundamental statistical problem solving.

Standard 1.0 - Students know the definition of the notion of *independent events* and can use the rules for addition, multiplication, and complementation to solve for probabilities of particular events in finite sample spaces.

Standard 2.0 - Students know the definition of *conditional probability* and use it to solve for probabilities in finite sample spaces.

Standard 3.0 - Students demonstrate an understanding of the notion of *discrete random variables* by using them to solve for the probabilities of outcomes, such as the probability of the occurrence of five heads in 14 coin tosses.

Standard 4.0 - Students are familiar with the standard distributions (normal, binomial, and exponential) and can use them to solve for events in problems in which the distribution belongs to those families.

Standard 5.0 - Students determine the mean and the standard deviation of a normally distributed random variable.

Standard 6.0 - Students know the definitions of the *mean, median*, and *mode* of a distribution of data and cam compute each in particular situations.

Standard 7.0 - Students compute the variance and the standard deviation of a distribution of data.

Standard 8.0 - Students organize and describe distributions of data by using a number of different methods, including frequency tables, histograms, standard line and bar graphs, stem-and-leaf displays, scatterplots, and box-and-whisker plots.

Standard 9.0 - Students find the line of best fit to a given distribution of data by using least squares regression.

Standard 10.0 - Students know what the correlation *coefficient of two variables* means and are familiar with the coefficient's properties.

Standard 11.0 - Students determine confidence intervals for a simple random sample from a normal distribution of data.

Standard 12.0 - Students determine a *P*-value for a statistic for a simple random sample from a normal distribution.