Course Title: Statistics

Course #: 1445-1446

Course Description: Statistics is designed for students who have completed a minimum of Algebra 2 and wish to continue their mathematics education but do not wish to take Pre-Calculus or AP Statistics. Statistics covers four (4) major topics throughout the school year: Producing data, organizing data, probability, and statistical inference. This course will utilize graphing calculator technology with a statistical package (such as the Ti-84). Successful completion of this course prepares students for college-level statistics.

UC/CSU Approval: “C” approved

Grade Level: 11-12

Estimated Homework Per Week: Students who wish to be successful are expected to spend approximately 30-60 minutes outside of class on homework for each class period. Roughly one section from the text will be covered per class and one chapter every 4 weeks.

Prerequisite: Completion of Algebra 2 or Algebra 2/Trig (Honors) with a grade of “C” or higher

Recommended Prerequisite Skills: Students entering Statistics should already have a good understanding of the following concepts:

- Basic math skills, especially solving for variables in equations
- Identifying slope from graphs, equations, and word problems
- Students should also have strong reading skills to be able to understand and interpret a variety of word problems and explanations of concepts
- Students should be able to critically think and relate topics covered in class to real-world application problems

Course Grade Scale:

- Tests and Quizzes: 55%
- Homework: 15%
- Activities: 15%
- Final Exam: 15%

Major Assessments/Units/Topics:

Each semester will have approximately 4 tests and 4 quizzes.
Topics to be covered include:

**SEMESTER ONE**

- **Analyzing One-Variable Data**
  - organizing/displaying data
  - using numerical summaries for quantitative data
  - describing location in a distribution
- **Analyzing Two-Variable Data**
  - analyzing/displaying two-variable data
  - measuring/interpreting correlation
  - modeling linear associations
- **Collecting Data**
  - using the four steps of the statistical problem-solving process
  - taking samples/surveys using appropriate methods
  - identifying/designing an observational study and an experiment
- **Probability**
  - understanding the concepts of randomness, probability, and simulation
  - using probability models and basic probability rules
  - recognizing conditional probability and its usefulness in identifying independent events
  - using counting principles to help solve certain probability questions

**SEMESTER TWO**

- **Random Variables**
  - analyzing random variables
  - recognizing/interpreting Binomial as well as Normal probabilities
- **Sampling Distributions**
  - understanding the idea of a sampling distribution
  - using the sampling distribution of a sample count/proportion/mean to find the probability of obtaining a particular sample statistic
- **Estimating a Parameter**
  - understanding the idea of a confidence interval
  - making a confidence interval for a proportion/mean
- **Testing a Claim**
  - understanding the idea of a significance test
  - checking the conditions for when a significance test is appropriate
  - conducting a significance test for a proportion/mean