

Spaulding High School

Course Title: Statistics

Department: Mathematics

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Course Description:

The goals of this course are to further the knowledge and usage of statistics regarding organizing and producing data, probability and inference. This course moves quickly and assumes knowledge of Algebra 1, Algebra 2 and Geometry topics and uses a variety of learning methods including explorations, experiments and self-directed study. There is a heavy dependence on the TI-83 graphing calculator. To be successful, Statistics students must complete daily work and readings, as well as think independently.

Standards:

- Organizing Data
- Relationships
- Producing Data
- Probability
- Inference

Materials/Text(s):

Chromebooks, headphones are highly recommended

Graphing Calculator: TI-83 Plus or TI-84 (do not wait or put this off)

3-Ring Binder (1½ - 2")

Pencils/erasers (Mechanical pencils are **STRONGLY** suggested so sharpeners aren't needed)

Loose-leaf lined and Graph Paper

Composition Book: plain, graph, or lined. (we can provide basic comp books)

Replacement cost(s): \$120 if a textbook is assigned

Practice:

- Classwork and homework are not assessed for proficiency but will help students practice and learn standards for future assessments. Students are expected to participate in class work, remote work, projects, google meets, extra practice, and check-ins. These are not counted towards assessment, but merely as practice to strengthen their abilities and help them stay connected when working remotely or distanced apart.
- Practice will also help students become eligible for reassessment to meet their reassessment plan (see below).

Assessment/Reassessment:

- Students will have multiple opportunities to show **proficiency** on each standard through assessments and reassessments.
- Assessments will be given at the end of each Unit as outlined below.
- In order to be considered to be **exemplary** in the course, a final exam will be given at the end of the course in which students will need to show mastery of the content of the entire course.
- The final Call Back day of the semester will be available to those students who only need to reassess on three indicators to reach proficiency or exemplary for the course.

Embedded Honors Credit:

- Students must complete a final project over the course of the 2nd quarter demonstrating their knowledge of statistics to receive honors credit for the course.

Standard	Level of Proficiency	Indicators
A. Organizing Data*	Proficient	Classify Data Correctly
		Construct Graphical Representations
		Interpret Visual Representations
	Exemplary	Compare Distributions
		Describe Statistical Information in Context
B. Relationships*	Proficient	Identify Explanatory and Response Variables
		Describe and Interpret Scatterplots
		Compute and Interpret Linear Regression
	Exemplary	Explain Effects on Correlation
		Explain Correlation Coefficients and Variability
		Compute Residuals to Evaluate Quality
		Straighten Non-Linear Data
C. Producing Data*	Proficient	Know the Difference Between Experiment and Observation
		Describe Sampling Strategies
		Describe Experimental Strategies
	Exemplary	Design and Run a Simulation
		Design Samples and Experiments
		Identify Sources of Potential Bias
D. Probability*	Proficient	Compute Simple Theoretical and Empirical Probabilities
		Calculate Mean & Standard Deviation of Random Variables
		Use Z-Scores to Compare Scenarios
	Exemplary	Compute Conditional Probabilities
		Compute Binomial and Geometric Probabilities
		Determine Mutually Exclusive and/or Independent Events
E. Inference*	Proficient	Compute Confidence Intervals for Proportions and Sample Means
		Determine Significance of Proportion and Mean Testing
		Apply the Central Limit Theorem
	Exemplary	Compute Sample Sizes to Adjust Margins of Error

		Calculate and Interpret Type I and Type II Errors
		Compute Power of a Test
		Compare T-Distributions and Normal Distributions
		Compute and Interpret Chi Square Distributions
		Compute Significance of Approximations of Slope

COURSE PERFORMANCE RATING	GPA Value	GRADING CRITERIA
Exemplary	4.0	<ul style="list-style-type: none"> • All standards are Exemplary
Partially Exemplary	3.5	<ul style="list-style-type: none"> • All standards are Exemplary or Proficient, with at least one standard being Exemplary
Proficient	3.0	<ul style="list-style-type: none"> • All standards are Proficient
Partially Proficient	2.5	<ul style="list-style-type: none"> • Majority of standards are Proficient, AND • No standards are Beginning or Insufficient Evidence
Developing	2.0	<ul style="list-style-type: none"> • Majority of standards are Developing.
Beginning	1.0	<ul style="list-style-type: none"> • Majority of standards are Beginning.
Insufficient Evidence	0.0	<ul style="list-style-type: none"> • Majority of the standards are Insufficient Evidence.

*Honors and AP courses would add an additional 0.33 to the GPA score.