Greenwich Public Schools Curriculum Overview

Statistics 1

Personalized learning is achieved through standards-based, rigorous and relevant curriculum that is aligned to digital tools and resources.

Note: Teachers retain professional discretion in how the learning is presented based on the needs and interests of their students.

Course Description

Statistics 1 (Grade 12 only) 1st semester
027555 6 Blocks 0.5 Credit
Prerequisite: Algebra 2A, or Algebra 2B with a grade of C+ or better and teacher recommendation.
This single semester statistics course will offer students an introduction to the study of statistics. Topics include probability, various probability distributions, and collecting, analyzing, and representing data both by hand and by using technology. This course is a non-sequential math elective course.

Unit Guide

Chapter 1: Introduction to Statistics
Chapter 2: Descriptive Statistics
Chapter 3: Probability
Chapter 4: Discrete Probability Distributions
Semester Review & Semester Project

Notes:

- A few extra days have been allotted for teachers to individualize their instruction, enrichment and the use of technology, as well as allow time for extra assessments and projects.

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.

Enduring Understandings

- *Chapter 1*:
  - Statistics is necessary to make accurate decisions involving data.
  - Proper experimental design is necessary to ensure non-biased results.
- *Chapter 2*: Organizing and displaying data sets make the data easier to understand by describing trends, averages, and variations.
- *Chapter 3*: Probability determines that an event will occur in everyday life.

- *Chapter 4*: Knowing the shape, center, and variability of a probability distribution will enable students to make decisions in inferential statistics.

Essential Questions:

- *Chapter 1*:
  - What are the two types of statistics?
  - What is the difference between a sample and a population?
  - What are the different levels of measurement that can be applied to data?
  - What is involved in ensuring proper experimental design?
  - How can one truly ensure a selection of random samples?
  - What does it mean for an experiment to be biased?
  - What is a double-blind experiment and how are they used?
  - What is a placebo effect?
- *Chapter 2*:
  - How do graphs enhance the display of data?
  - How does one know which graph is appropriate to use for a given set of data?
  - Why does one need to analyze the spread of data?
  - In what situations might it be useful to compare the spread of data?
  - How can we use technology (including Google Sheets) to analyze and display data?
- *Chapter 3*:
  - How is probability used in everyday life?
  - Why is it necessary to determine if two events are independent when calculating probabilities?
  - What is the difference between permutations and combinations?
- *Chapter 4*:
  - What is the difference between a discrete and a continuous variable?
  - What is a probability distribution?
  - What is a binomial probability distribution?
  - How does a geometric probability distribution differ from a binomial distribution?

Resources and Assured Experiences

Textbook Information:
Elementary Statistics – Picturing the World
Pearson / Prentice Hall (4th Edition)
ISBN 0-13-600720-1

Quarterly Grading - Quarter Grades will be determined using the following components:

- Participation (includes Classwork) = 10%
- Preparation (includes Homework) = 20%
- Assessments (both Summative & Formative) = 70%

Connecticut Common Core State Standards

- *Chapter 1*: CCSS.MATH.CONTENT.HSS.IC.B.3.
- *Chapter 2*: CCSS.MATH.CONTENT.HSS.ID.A.1, A.2, A.4; HSS.ID.B.6
- *Chapter 3*: CCSS.MATH.CONTENT.HSS.CP.A.2, A.3, A.4, A.5, B.6, B.7, B.8, B.9.
- *Chapter 4*: CCSS.MATH.CONTENT.HSS.MD.A.1, A.2, A.3, A.4.