Introduction to Statistics

MTHH041055

Credits: 0.5 units / 5 hours | NCAA Approved

Course Description

This course will introduce students to the field of statistics, which is important in business, medicine, social studies, athletics, agriculture, and many other areas. Students will learn how to gather, represent, and analyze data using equations, graphs, tables, estimates, and hypotheses. Students will be introduced to independent events and dependent probability. Students will need a graphing calculator or online graphing program to complete this course.

Prerequisites: 2nd Year Algebra 1 & 2 (Advanced Algebra 1 & 2)

Course Assessments

5 Unit Evaluations, 3 Projects, 3 Progress Tests, 5 Teacher Connect Activities

Course Objectives

When you have completed the materials in this course, you should be able to:

1. Define types of data.

2. Identify the 5 w's to provide context for data values.

3. Identify different types of studies.

4. Construct and describe statistical graphics.

5. Construct and interpret the mean, mode, median, and midrange for any data set.

6. Construct and interpret the range, standard deviation, and variance for any data set.

7. Calculate and interpret quartiles, deciles, and percentiles from a set of data.

8. Calculate and interpret z scores.

9. Understand continuous probability distributions and normal distributions.

10. Estimate a population proportion.

11. Understand random variables and probability distributions.

12. Understand the concept of the central limit theorem.

13.   Explain why probability is important to statistics.

14.   Use hypothesis testing to make a claim about a proportion.

Course Outline

Unit 1: Introducing Statistics
Lesson 1: Statistics Starts Here
Lesson 2: Categorical Pictures
Lesson 3: Quantitative Data

Unit 2: Summarizing and Graphing Data
Lesson 4: Normal Distribution
Lesson 5: Linear Models
Lesson 6: Curved Models utions

Unit 3: Gathering Data
Lesson 7: Samples
Lesson 8: Experimental Data
Lesson 9: Randomness

Unit 4: Probability
Lesson 10: Introduction to Probability
Lesson 11: Probability Rules
Lesson 12: Probability Models

Unit 5: Using Data to Predict
Lesson 13: Confidence Intervals
Lesson 14: Hypothesis Testing
Lesson 15: Comparing Hypotheses Results

Required Textbook
(available through Follett virtual bookstore at http://highschool.nebraska.bkstr.com)

Textbook: *Stats in Your World.* Bock, David E., and Thomas J. Mariano*.* 2nd ed. Pearson Education, Inc. 2016. ISBN: 9780133839722