

Elementary Statistics Syllabus
Spring Semester 2013-2014
Horizon High School

Weeks 1-3

Confidence Intervals and Sample Size

7-2 Confidence Intervals for the Mean (Population Standard Deviation is known or n is greater than or equal to 30) and Sample Size.

Assignment: 1-7 all, 9-25 odd pages 336-337

7-3 Confidence Intervals for the mean (Standard deviation unknown or $n < 30$)

Assignment: 1-4 all, 5-19 odd

7-4 Confidence Intervals and Sample Size for Proportions

Assignment: 1-2, 3-19 odd

7-5 Confidence Intervals for Variances and Standard Deviations

Assignment: 3-11 odd

7-6 Review

Assignment: 1-15 odd

Chapter Test

Weeks 4-8

Hypothesis Testing

8-1 Introduction

Assignment: A paragraph synopsis of the 3 methods used to test hypotheses.

8-2 Steps in Hypothesis Testing

Assignment 1: Define and explain key terms from chapter

Assignment 2: Construct a Procedure Table

Assignment 3: 1-13 All

Project: Use information from this sub-chapter to construct a hypothesis and procedure section for your physics experiment

8-3 Z test for the mean

Assignment: Reject or not Reject Hypothesis Claims exercise
Assignment: Explain P-value method for Hypothesis testing
Assignment; Decision Rule when using P-Value

Assignment: 1-13 odd
Assignment 15-25 odd

8-4 T-test for the mean

Assignment 1-4, 5-19 odd

8-5 z test for a proportion

Assignment 1-4, 5-15 odd
Assignment 17 and 19

8-6 X squared test for Variance or Standard Deviation

Assignment 1-2, 3-13 odd

8-7 Additional Topics Regarding Hypothesis

Assignment 1-5 odd 7-9 all

8-8 Review 1-19 all

Chapter test

Weeks 9-12

Testing the difference between: 1. Two Means, Two Variances and Two Proportions.

9-1 Introduction

9-2 Testing the difference between two means: large samples

Assignment: 1-19 odd

9-3 Testing the differences between two variances

Assignment: 1-19 odd

9-4 Testing the differences between two means: Small Independent Samples

Assignment 1-13 odd

9-5 Testing the difference between 2 means: Small Dependent Samples

Assignment 1-9 odd

9-6 Testing the difference between proportions

Assignment: 1-19 odd

9-7 Review

Assignment: All

Chapter test

Week 12-15

Correlation and Regression

10-1 Introduction

10-2 Scatter Plots

10-3 Correlation Coefficient

- Assignments:
1. What is the Significance of the Correlation Coefficient?
 2. What is the relationship between Correlation and Causation?
 3. Exercise 1-11, 13-27 odd

10-4 Regression

- Assignments:
1. What determines the regression line equation?
 2. What assumptions are needed for valid predictions in Regression?
 3. 1-11, 13-35 odd

10-5 Coefficient of determination and standard error of the estimate

- Assignments:
1. Explain each type of variation for the Regression Model.
 2. Define and give an example for the usefulness of the Coefficient of t Determination.
 3. Construction of a Prediction Interval
 4. Exercises 1-7, 9-21 odd

10-7 Chapter 10 review

Assignment: All

Chapter 10 test

Weeks 16-17

Other Chi-Square tests

11-1 Introduction

11-2 Test for Goodness of fit

Assignment: 1-5, 7-13 odd

11-3 Test using contingency tables

Assignments: 1. Explain the usefulness of the Chi Square test for Independence.
2. Explain the usefulness of the Chi Square test for Homogeneity of Proportions.
3. 1-7, 9-31(odd)

11-4 Review

Assignment: All

Chapter test

Week 18

Final exam review

Final

Grading

Daily Assignments 40%

Chapter Test 40%

Final Exam 20%

A 90-100

A- 87-89

B+ 82-86

B 77-81

B- 74-76

C+ 71-73

C 68-70

C- 65-67

D 55-64

F Below 55

Wisconsin State Math Standards

10.E.a Data Analysis and Statistics

10.E.a.1 Organize, display, compare and interpret data in a variety of ways in mathematical and real-world contexts e.g., histograms, line graphs, stem-and-leaf plots, scatter plots, box-and whiskers, bar charts, Venn diagrams, tables, circle graphs.

Interpret bar graphs, line graphs, and histograms (Algebra 1 - N.1)

Create bar graphs, line graphs, and histograms (Algebra 1 - N.2)

Circle graphs (Algebra 1 - N.3)

Interpret stem-and-leaf plots (Algebra 1 - N.4)

Interpret box-and-whisker plots (Algebra 1 - N.5)

Interpret a scatter plot (Algebra 1 - N.6)

Scatter plots: line of best fit (Algebra 1 - N.7)

10.E.a.2 Interpret, analyze and make predictions from organized and displayed data. e.g., measures of central tendency such as mean, median, mode, and, measures of variation such as standard deviation, mean, median, mode, range, dispersion, outliers, line of best fit, percentiles.

Scatter plots: line of best fit (Algebra 1 - N.7)

Mean, median, mode, and range (Algebra 1 - KK.1)

Quartiles (Algebra 1 - KK.2)

Mean absolute deviation (Algebra 1 - KK.4)

Variance and standard deviation (Algebra 1 - KK.5)

10.E.a.3 Analyze, evaluate and critique methods and conclusions of statistical experiments, e.g., randomness, sampling, techniques, surveys.

Identifying biased samples (Algebra 1 - KK.3)

10.E.b Probability

10.E.b.1 Determine the likelihood of occurrence of simple and complex events Ex: Combinations and permutations, fundamental counting principle, experimental versus theoretical probability and independent, dependent and conditional probability.

Theoretical probability (Algebra 1 - JJ.1)

Experimental probability (Algebra 1 - JJ.2)

Compound events: find the number of outcomes (Algebra 1 - JJ.3)

Identify independent and dependent events (Algebra 1 - JJ.4)

Probability of independent and dependent events (Algebra 1 - JJ.5)

Permutations (Algebra 1 - JJ.6)

Counting principle (Algebra 1 - JJ.7)

Permutation and combination notation (Algebra 1 - JJ.8)

Theoretical and experimental probability (Geometry - X.1)

Compound events: find the number of outcomes (Geometry - X.2)

Independent and dependent events (Geometry - X.3)

Permutations (Geometry - X.4)

Counting principle (Geometry - X.5)

Permutation and combination notation (Geometry - X.6)

Geometric probability (Geometry - X.7)