Odysseyware®

CURRICULUM OVERVIEW

Probability and Statistics A

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Course Overview

Course Overview: Probability and Statistics, Semester A

Semester A of Probability of Statistics is designed to give 11th- and 12th-grade students an overview of basic concepts of statistics, with an emphasis on descriptive statistics. The semester begins with the key concepts of data, samples, and populations. Students will create visual representations of data sets, such as histograms and bar graphs. Students will describe the central tendency and spread of data for a data set. Students will look for patterns in a data set and determine models based on those patterns.

Each of the five units includes twelve lessons and one project. Each lesson has a minimum of thirteen formative assessment questions to enable students and their teacher to gauge student understanding. Summative assessments include three quizzes in each unit, a test for each unit, and a semester exam covering all five units. Each project uses concepts covered in the unit.

- **Unit 1: Describe the types of statistics, types of data, types of studies, and sampling methods.**
- **Unit 2: Create visual representations of data sets using dot plots, stem-and-leaf displays, scatter plots, and find the model that best represents the data.**
- **Unit 3: Describe the central tendency of a data set using various measures.**
- **Unit 4: Describe the dispersion of a data set using both numerical measures and visual representations.**
- **Unit 5: Apply concepts learned in this lesson to a variety of real world applications.**

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Unit 1: INTRODUCTION TO STATISTICS

Assignments

1.	Course Overview	13.	Alternate Quiz: Recognizing Bias*
2.	Types of Statistics	14.	Observational Studies
3.	Types of Data	15.	Experiments
4.	Discrete and Continuous Data	16.	Stratified Random Samples
5.	Sample and Population	17.	Interpreting Results
6.	Quiz: Data	18.	Project: The Challenge to be Random
7.	Alternate Quiz: Data*	19.	Quiz: Types of Studies
8.	Collecting Data	20.	Alternate Quiz: Types of Studies*
9.	Sampling Bias	21.	Unit Review
10.	Simple Random Samples	22.	Test: Introduction to Statistics
11.	Surveys	23.	Alternate Test: Introduction to Statistics*
12.	Quiz: Recognizing Bias	24.	Glossary and Credits

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Unit 2: PRESENTING DATA

Assignments

1. Simple Plots
2. Histograms and Bar Graphs
3. Central Tendency and Spread
4. Scatter Plots
5. Quiz: Displays
6. Alternate Quiz: Displays*
7. Graphical Line of Best Fit
8. Slope of a Line
9. Finding the Equation of a Line of Best Fit
10. Interpreting the Line of Best Fit
11. Quiz: Line of Best Fit
12. Alternate Quiz: Line of Best Fit*
13. Using Techology to Determine a Line of Best Fit
14. Nonlinear Relationships
15. Transforming Linear Functions by Vertical Change
16. Transforming Linear Functions by Changing the Slope
17. Project: Line of Best Fit
18. Quiz: Best Fit Functions
19. Alternate Quiz: Best Fit Functions*
20. Unit Review
21. Test: Presenting Data
22. Alternate Test: Presenting Data*
23. Glossary and Credits

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Unit 3: MEASURES OF CENTRAL TENDENCY

Assignments

1. The Mean
2. The Median
3. The Mode
4. Sample and Population Mean
5. Quiz: Mean, Median, and Mode
6. Alternate Quiz: Mean, Median, and Mode*
7. Comparing Measures of Central Tendency
8. Frequency Tables and the Mode
9. Grouped Frequency Tables and the Modal Class
10. Frequency Tables and the Median
11. Quiz: Frequency Tables
12. Alternate Quiz: Frequency Tables*
13. Frequency Tables and the Mean
14. The Midrange
15. Cumulative Frequency
16. Cumulative Frequency Graphs
17. Project: Data Collection
18. Quiz: Using Frequency
19. Alternate Quiz: Using Frequency*
20. Unit Review
21. Test: Measures of Central Tendency
22. Alternate Test: Measures of Central Tendency*
23. Glossary and Credits

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Unit 4: MEASURES OF DISPERSION

Assignments

1. Range
2. Variance
3. Standard Deviation
4. Normal Distributions
5. Quiz: Dispersion
6. Alternate Quiz: Dispersion*
7. Percentile
8. Interquartile Range
9. Five Key Points
10. Box Plots
11. Quiz: Dispersion Displays
12. Alternate Quiz: Dispersion Displays*
13. Estimating Population Dispersion
14. Irregular Data Sets
15. Sampling Distribution
16. Other Distribution Shapes
17. Project: Describing Data
18. Quiz: Distributions
19. Alternate Quiz: Distributions*
20. Unit Review
21. Test: Measures of Dispersion
22. Alternate Test: Measures of Dispersion*
23. Glossary and Credits

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Unit 5: APPLICATIONS

Assignments

1. Comparing Two Populations
2. Marginal and Joint Frequencies
3. Projecting to Population
4. Categorical Data Analysis
5. Quiz: Populations
6. Alternate Quiz: Populations*
7. An Experimental Drug Study
8. Test Scores
9. Cigarettes and Lung Cancer
10. Another Look at Cigarettes and Lung Cancer
11. Quiz: Conducting Studies
12. Alternate Quiz: Conducting Studies*
13. Comparing Results for Cigarettes and Lung Cancer
14. Using Technology for Nonlinear Distributions
15. Power Functions
16. Logarithmic Relationships
17. Project: Experimental Drug Study
18. Quiz: Analyzing Data
19. Alternate Quiz: Analyzing Data*
20. Unit Review
21. Test: Applications
22. Alternate Test: Applications*
23. Glossary and Credits

Unit 6: SEMESTER REVIEW AND EXAM

Assignments

1. Semester Review
2. Semester Exam
3. Alternate Semester Exam*

(*) Indicates alternative assignment