ALEKS®

Corequisite Support for Introduction to Statistics

This course covers the topics shown below.
Students navigate learning paths based on their level of readiness.
Institutional users may customize the scope and sequence to meet curricular needs.

Curriculum Show All (128 topics + 61 additional topics)

- Arithmetic Review (22 topics)
  - ♦ Integers (7 topics)
    - ◊ Integer addition: Problem type 1
    - ◊ Integer subtraction: Problem type 1
    - ◊ Integer multiplication and division
    - ◊ Exponents and integers: Problem type 1
    - ◊ Order of operations with whole numbers
    - ◊ Order of operations with whole numbers and grouping symbols
    - ◊ Order of operations with whole numbers and exponents: Basic
  - ♦ Decimals (5 topics)
    - ◊ Decimal place value: Tenths and hundredths
    - ◊ Rounding decimals
    - ◊ Multiplication of a decimal by a power of ten
    - ◊ Division of a decimal by a power of ten
    - ◊ Using a calculator to convert a fraction to a rounded decimal
  - ♦ Percentages (10 topics)
    - ◊ Introduction to converting a decimal to a percentage
    - ◊ Converting between percentages and decimals
    - ◊ Converting between percentages and decimals in a real−world situation
    - ◊ Converting a fraction to a percentage: Denominator of 20, 25, or 50
    - ◊ Using a calculator to convert a fraction to a rounded percentage
    - ◊ Converting a fraction to a percentage in a real−world situation
    - ◊ Finding a percentage of a whole number
    - ◊ Finding a percentage of a total amount: Real−world situations
    - ◊ Writing a ratio as a percentage
    - ◊ Computing a percentage from a table of values
- Algebra Review (15 topics)
  - ♦ Algebraic Expressions (5 topics)
    - ◊ Evaluating an algebraic expression: Whole numbers with two operations
    - ◊ Evaluating a formula
    - ◊ Evaluating a linear expression: Integer multiplication with addition or subtraction
    - ◊ Distributive property: Whole number coefficients
    - ◊ Combining like terms: Integer coefficients
  - ♦ Equations and Inequalities (10 topics)
    - ◊ Solving a two−step equation with integers
    - ◊ Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
    - ◊ Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
    - ◊ Solving for a variable in terms of other variables using addition or subtraction: Basic
    - ◊ Solving for a variable in terms of other variables using multiplication or division: Advanced

- ◊ Translating a sentence into a one−step equation
- ◊ Translating a sentence by using an inequality symbol
- ◊ Writing an inequality for a real−world situation
- ◊ Graphing a linear inequality on the number line
- ◊ Writing and graphing inequalities given in context

• Slope and Lines (24 topics)
- ♦ Graphing and Intercepts (11 topics)
  - ◊ Reading a point in the coordinate plane
  - ◊ Plotting a point in the coordinate plane
  - ◊ Finding a solution to a linear equation in two variables
  - ◊ Graphing a line given two of its points
  - ◊ Graphing a line given its equation in slope−intercept form: Integer slope
  - ◊ Graphing a line given its equation in slope−intercept form: Fractional slope
  - ◊ Finding x− and y−intercepts given the graph of a line on a grid
  - ◊ Y−intercept of a line
  - ◊ Finding x− and y−intercepts of a line given the equation: Basic
  - ◊ Graphing a line given its x− and y−intercepts
  - ◊ Interpreting a line graph
- ♦ Slope (7 topics)
  - ◊ Finding slope given the graph of a line in quadrant 1 that models a real−world situation
  - ◊ Classifying slopes given graphs of lines
  - ◊ Finding slope given the graph of a line on a grid
  - ◊ Finding slope given two points on a line
  - ◊ Graphing a line given its slope and y−intercept
  - ◊ Finding a coordinate pair given the slope and a point on a line
  - ◊ Graphing a line through a given point with a given slope
- ♦ Equations of Lines (3 topics)
  - ◊ Finding the slope and y−intercept of a line given its equation in the form y = mx + b
  - ◊ Writing an equation of a line given its slope and y−intercept
  - ◊ Writing the equation of a line given the y−intercept and another point
- ♦ Applications (3 topics)
  - ◊ Finding outputs of a two−step function with decimals that models a real−world situation: Two variable equation
  - ◊ Finding the intercepts and rate of change given a graph of a linear function
  - ◊ Interpreting the parameters of a linear function that models a real−world situation

• Collecting and Displaying Data (23 topics)
- ♦ Collecting Data (7 topics)
  - ◊ Differentiating between parameters and statistics
  - ◊ Classification of variables
  - ◊ Discrete versus continuous variables
  - ◊ Choosing units of measurement and an appropriate method to gather data
  - ◊ Understanding the differences between designed experiments and observational studies
  - ◊ Identifying confounders and ways to eliminate them in an observational study
  - ◊ Identifying and reducing statistical bias
- ♦ Displaying Data (15 topics)
  - ◊ Interpreting a tally table
  - ◊ Constructing a frequency distribution for non−grouped data
  - ◊ Representing data on a dot plot
  - ◊ Representing data on a bar graph
  - ◊ Interpreting a bar graph
  - ◊ Interpreting a double bar graph
  - ◊ Understanding how adjusting the vertical scale can make a graph misleading
  - ◊ Understanding how two dimensional graphs can be misleading

- ◊ Constructing a frequency distribution for grouped data
- ◊ Constructing a frequency distribution and a histogram
- ◊ Constructing a frequency distribution and a frequency polygon
- ◊ Cumulative distributions and ogives
- ◊ Interpreting a stem−and−leaf display
- ◊ Interpreting a pie chart
- ◊ Finding a percentage of a total amount in a circle graph

♦ Venn Diagrams (1 topics)

- ◊ Interpreting Venn diagram cardinalities with 2 sets for a real−world situation

• Describing Data (23 topics)

♦ Measures of Center (11 topics)

- ◊ Introduction to summation notation
- ◊ Mean of a data set
- ◊ Computations involving the mean, sample size, and sum of a data set
- ◊ Rejecting unreasonable claims based on average statistics
- ◊ Weighted mean: Tabular data
- ◊ Median of a data set
- ◊ Mode of a data set
- ◊ Mean, median, and mode: Computations
- ◊ How changing a value affects the mean and median
- ◊ Choosing the best measure to describe data
- ◊ Comparing the mean, median, and mode of a data set

♦ Measures of Variation (3 topics)

- ◊ Range of a data set
- ◊ Using back−to−back stem−and−leaf displays to compare data sets
- ◊ Sample standard deviation

♦ Measures of Position (9 topics)

- ◊ Percentage of data below a specified value
- ◊ Percentiles
- ◊ Interpreting percentile ranks
- ◊ Finding quartiles
- ◊ Five−number summary and interquartile range
- ◊ Introduction to finding outliers in a data set
- ◊ Using the IQR to find outliers in a data set
- ◊ Interpreting a box−and−whisker plot
- ◊ Constructing a box−and−whisker plot involving outliers

• Counting and Basic Probability (13 topics)

♦ Fundamental Counting Principle (3 topics)

- ◊ Interpreting a tree diagram
- ◊ Introduction to the counting principle
- ◊ Counting principle

♦ Permutations and Combinations (1 topics)

- ◊ Factorial expressions

♦ Probability of Simple Events (9 topics)

- ◊ Determining a sample space and outcomes for an event: Experiment involving a single selection
- ◊ Determining a sample space and outcomes for an event: Experiment involving multiple selections
- ◊ Introduction to the probability of an event
- ◊ Probability involving one die or choosing from n distinct objects
- ◊ Probability involving choosing from objects that are not distinct
- ◊ Probabilities of an event and its complement
- ◊ Finding probabilities of events and complements
- ◊ Experimental and theoretical probability
- ◊ Outcomes and event probability

- Rules for Probability (8 topics)
  - ♦ Addition and Multiplication Rules for Probability (6 topics)
    - ◊ Determining outcomes for unions, intersections, and complements of events
    - ◊ Calculating relative frequencies in a contingency table
    - ◊ Calculating relative frequencies in a contingency table: Advanced
    - ◊ Probabilities involving two rolls of a die: Decimal answers
    - ◊ Word problem involving the probability of a union
    - ◊ Computing probability involving the addition rule using a two−way frequency table
  - ♦ Conditional Probability (2 topics)
    - ◊ Computing conditional probability using a sample space
    - ◊ Computing conditional probability using a two−way frequency table

- Other Topics Available(*) (61 additional topics)
  - ♦ Arithmetic Review (7 topics)
    - ◊ Order of operations with integers
    - ◊ Simplifying a fraction
    - ◊ Addition or subtraction of fractions with different denominators
    - ◊ Fraction multiplication
    - ◊ Fraction division
    - ◊ Using a calculator to approximate a square root
    - ◊ Converting a percentage to a fraction in simplest form
  - ♦ Algebra Review (3 topics)
    - ◊ Solving for a variable in terms of other variables using addition or subtraction with division
    - ◊ Solving for a variable inside parentheses in terms of other variables
    - ◊ Graphing a compound inequality on the number line
  - ♦ Slope and Lines (9 topics)
    - ◊ X− and y−intercepts of a line given the equation in standard form
    - ◊ Graphing a line by first finding its x− and y−intercepts
    - ◊ Finding the slopes of horizontal and vertical lines
    - ◊ Finding the slope and y−intercept of a line given its equation in the form $Ax + By = C$
    - ◊ Writing an equation in slope−intercept form given the slope and a point
    - ◊ Writing the equation of a line through two given points
    - ◊ Writing and evaluating a function that models a real−world situation: Advanced
    - ◊ Application problem with a linear function: Finding a coordinate given the slope and a point
    - ◊ Application problem with a linear function: Finding a coordinate given two points
  - ♦ Collecting and Displaying Data (11 topics)
    - ◊ Classification of variables and levels of measurement
    - ◊ Choosing an appropriate method to conduct a survey and making an estimation
    - ◊ Classifying samples
    - ◊ Histograms for grouped data
    - ◊ Constructing a relative frequency distribution for grouped data
    - ◊ Interpreting relative frequency histograms
    - ◊ Shapes of discrete distributions
    - ◊ Computations from pie charts
    - ◊ Constructing a scatter plot
    - ◊ Introduction to shading a Venn diagram with 2 events
    - ◊ Shading a Venn diagram with 2 events: Unions, intersections, and complements
  - ♦ Describing Data (10 topics)
    - ◊ Summation of indexed data
    - ◊ Finding the mean of a symmetric distribution
    - ◊ Finding the value for a new score that will yield a given mean
    - ◊ Finding the value for a new score to yield a mean that satisfies a given criterion

- ◊ Making reasonable inferences based on proportion statistics
- ◊ Comparing measures of center and variation
- ◊ Identifying the center, spread, and shape of a data set
- ◊ Population standard deviation
- ◊ Constructing a box−and−whisker plot
- ◊ Using box−and−whisker plots to compare data sets

♦ Counting and Basic Probability (8 topics)

- ◊ Counting principle with repetition allowed
- ◊ Computing permutations and combinations
- ◊ Introduction to permutations and combinations
- ◊ Permutations and combinations: Problem type 1
- ◊ Permutations and combinations: Problem type 2
- ◊ Probability of selecting one card from a standard deck
- ◊ Understanding likelihood
- ◊ Probabilities of a permutation and a combination

♦ Rules for Probability (13 topics)

- ◊ Identifying independent events given descriptions of experiments
- ◊ Probability of independent events: Decimal answers
- ◊ Probability of dependent events: Decimal answers
- ◊ Probabilities of draws with replacement
- ◊ Outcomes and event probability: Addition rule
- ◊ Using a Venn diagram to understand the addition rule for probability
- ◊ Word problem involving the probability of a union or an intersection
- ◊ Using a Venn diagram to understand the multiplication rule for probability
- ◊ Outcomes and event probability: Conditional probability
- ◊ Identifying independent events given values of probabilities
- ◊ Computing conditional probability using a large two−way frequency table
- ◊ Conditional probability: Basic
- ◊ Intersection and conditional probability

***Other Topics Available** *By default, these topics are NOT included in the course, but can be added using the content editor in the Teacher Module.*

