



BROWNELL TALBOT

Statistics Prioritized Math Standards

The prioritized standards listed align with both the NCTM (National Council for Teachers of Mathematics) and the Nebraska State Standards. The NCTM also includes a set of Process Standards for grades preschool through 12 that highlight mathematical processes that students draw on to acquire and use their content knowledge (see the link on the next page).

Red indicates foundational skill for an AP calculus path.

Blue indicates foundational skill for a AP statistics path.

Purple indicates a foundational skill for both an AP calculus and AP statistics path.

Data Analysis & Probability

<p>Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them</p>	<p>Understand the differences among various kinds of studies and which types of inferences can legitimately be drawn from each;</p> <p>Know the characteristics of well-designed studies, including the role of randomization in surveys and experiments</p> <p>Understand the meaning of measurement data and categorical data, of univariate and bivariate data, and of the term variable</p> <p>Understand histograms, parallel box plots, and scatterplots and use them to display data;</p> <p>Compute basic statistics and understand the distinction between a statistic and a parameter</p> <p><u>ACT (Math): S702</u></p> <p>-Analyze and draw conclusions based on information from tables and charts, including two-way frequency tables</p>
<p>Select and use appropriate statistical methods to analyze data</p>	<p>For univariate measurement data, be able to display the distribution, describe its shape, and select and calculate summary statistics</p> <p>For bivariate measurement data, be able to display a scatter plot, describe its shape, and determine regression coefficients, regression equations, and correlation coefficients using technological tools</p> <p>Display and discuss bivariate data where at least one variable is categorical</p> <p>Recognize how linear transformations of univariate data affect shape, center, and spread</p> <p>Identify trends in bivariate data and find functions that model the data or transform the data so that they can be modeled</p> <p><u>ACT (Math):</u> S 701</p> <ul style="list-style-type: none"> • Distinguish between mean, median, and mode for a list of numbers

<p>Develop and evaluate inferences and predictions that are based on data</p>	<p>Use simulations to explore the variability of sample statistics from a known population and to construct sampling distributions</p> <p>Understand how sample statistics reflect the values of population parameters and use sampling distributions as the basis for informal inference</p> <p>Evaluate published reports that are based on data by examining the design of the study, the appropriateness of the data analysis, and the validity of conclusions</p> <p>Understand how basic statistical techniques are used to monitor process characteristics in the workplace</p> <p><u>ACT (Math):</u> S 705</p> <ul style="list-style-type: none"> • Recognize that part of the power of statistical modeling comes from looking at regularity in the differences between actual values and model values
<p>Understand and apply basic concepts of probability</p>	<p>Understand the concepts of sample space and probability distribution and construct sample spaces and distributions in simple cases</p> <p>Use simulations to construct empirical probability distributions</p> <p>Compute and interpret the expected value of random variables in simple cases</p> <p>Understand the concepts of conditional probability and independent events</p> <p>Understand how to compute the probability of a compound event</p> <p><u>ACT (Math):</u> S 703-704</p> <ul style="list-style-type: none"> • Understand the role of randomization in surveys, experiments, and observational studies • Exhibit knowledge of conditional and joint probability

Following the completion of Math Analysis, students choose from the following courses to align with the mathematics path of their choice: Introduction to Statistics, AP Statistics, AP Calculus AB, & AP Calculus BC.

AP Calculus AB & BC Framework:

<https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-calculus-ab-and-bc-course-and-exam-description.pdf>

AP Statistics Framework: <http://media.collegeboard.com/digitalServices/pdf/ap/ap-statistics-course-description.pdf>

NCTM Process Standards: brownell.edu/nctm