

NORTHERN BURLINGTON COUNTY REGIONAL SCHOOL DISTRICT
2020 Course Map/Pacing Guide

Department	Mathematics	Course	AP Statistics
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Source of Standards

[AP Statistics Course and Exam Description, Effective Fall 2019](#)

Sequence- Unit Titles and Number of weeks per unit (total = 18 semester/ 36 year)

- Unit 1: Exploring One-Variable Data [4 weeks]
- Unit 2: Exploring Two-variable Data [2 weeks]
- Unit 3: Collecting Data [2 weeks]
- Unit 4: Probability, Random Variables, and Probability Distributions [4 weeks]
- Unit 5: Sampling Distributions [3 weeks]
- Unit 6: Inference for Categorical Data: Proportions [3 weeks]
- Unit 7: Inference for Quantitative Data: Means [3 weeks]
- Unit 8: Inference for Categorical Data: Chi-Square [2 weeks]
- Unit 9: Inference for Quantitative Data: Slopes [2 weeks]

[Enduring Understanding](#) (link to guide)

BIG IDEA 1: VARIATION AND DISTRIBUTION (VAR)

The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. How can we determine whether differences between measures represent random variation or meaningful distinctions? Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.

BIG IDEA 2: PATTERNS AND UNCERTAINTY (UNC)

Statistical tools allow us to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow us to anticipate patterns in data and to determine the likelihood of errors in inference.

BIG IDEA 3: DATA-BASED PREDICTIONS, DECISIONS, AND CONCLUSIONS (DAT)

Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows us to make data-based decisions.

[Essential Questions](#) (link to guide)

- § Is my cat old, compared to other cats?
- § How certain are we that what seems to be a pattern is not just a coincidence?

§ Does the fact that the number of shark attacks increases with ice cream sales necessarily mean that ice cream sales cause shark attacks?

§ How might you represent incomes of individuals with and without a college degree to help describe similarities and/or differences between the two groups?

§ How can you determine the effectiveness of a linear model that uses the number of cricket chirps per minute to predict temperature?

§ What do our data tell us?

§ Why might the data we collected not be valid for drawing conclusions about an entire population?

§ How can an event be both random and predictable?

§ About how many rolls of a fair six-sided die would we anticipate it taking to get three 1s?

§ How likely is it to get a value this large just by chance?

§ How can we anticipate patterns in the values of a statistic from one sample to another?

§ When can we use a normal distribution to perform inference calculations involving population proportions?

§ How can we narrow the width of a confidence interval?

§ If the proportion of subjects who experience serious side effects when taking a new drug is smaller than the proportion of subjects who experience serious side effects when taking a placebo, how can we determine if the difference is statistically significant?

§ How do we know whether to use a t-test or a z-test for inference with means?

§ How can we make sure that samples are independent?

§ Why is it inappropriate to accept a hypothesis as true based on the results of statistical inference testing?

§ How does increasing the degrees of freedom influence the shape of the chi-square distribution?

§ Why is it inappropriate to use statistical inference to justify a claim that there is no association between variables?

§ How can there be variability in slope if the slope statistic is uniquely determined for a line of best fit?

§ When is it appropriate to perform inference about the slope of a population regression line based on sample data?

§ Why do we not conclude that there is no correlation between two variables based on the results of a statistical inference for slopes?

[Reporting Student Progress](#) (link to pyramid)

All courses follow a balanced assessment system with Practice, Assessments, Evaluations. Each category includes formative, summative and alternative assessments.

[Accommodations and Modifications](#) (link to menu)

Modifications on 504 plans may be submitted at [\(SSD\)](#) prior to testing. Both exclusion **statements** and **extensions** exist for each standard to accommodate different paces.

Resources (Text and Technology)

- The Practice of Statistics, 5th edition
- TI-84
- Stapplet
- Google Classroom
- AP Classroom
- Desmos
- Khan Academy.
- StatsMedic

