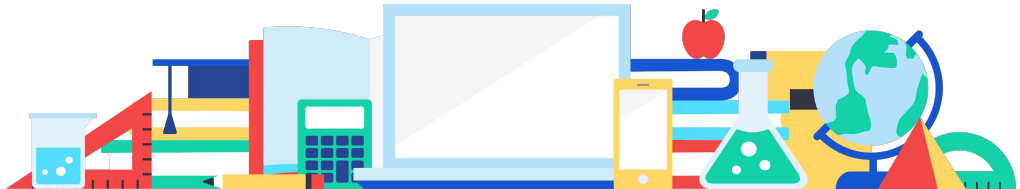
Statistics Topics & Resources

Updated September 2020



Key Topics

Key Topics Covered in Statistics

- Introduction to Statistics
  - Population vs sample
  - Qualitative vs quantitative data
  - Four levels of measurement
  - Types of sampling
- Descriptive Statistics
  - Stem and leaf plots, dotplots, histograms, box and whisker plots
  - Understanding skewed data
  - Measures of center and spread
  - Quartiles, IQR, and outliers
- Relationships between variables
  - Scatterplots
  - Correlation coefficient
  - Residual plots
- Random Variables
  - Discrete and continuous variables
  - Expected value and variance of random variables
- Normal Distribution
  - Areas under the normal curve
  - Probabilities under the normal distribution
  - Z-score table
  - Central Limit Theorem
- Confidence Intervals
  - Confidence intervals for the population mean
  - Confidence intervals for the population proportion
  - Confidence intervals for the difference between two means
  - Confidence intervals for the difference between two proportions
- Hypothesis Testing
  - Null and alternative hypotheses
  - Type I and II errors
  - Interpret p-values
- Probability
  - Randomness, probability, and simulation
  - Basic theoretical probability
  - Basic set operations
  - Multiplication rules for independent/dependent events
  - Conditional probability and independence

Statistics

Additional Resources

- https://www.khanacademy.org/math/statistics-probability
- https://www.mathsisfun.com/links/curriculum-high-school-statistics.html
- https://apcoronavirusupdates.collegeboard.org/media/pdf/formula-sheet-and-tables-2020.pdf
- https://www.cliffsnotes.com/study-guides/statistics
- https://web.mit.edu/~csvoss/Public/usabo/stats_handout.pdf
- https://www.socscistatistics.com/tests/
- https://www.calculator.net/math-calculator.html