



Data Science Study Guide

Topics

- Probability
 - Fundamentals
 - Basic Probability Formula
 - Expected Values
 - Frequency
 - Events and Complements
 - Combinatorics
 - Permutations
 - Factorial Operations
 - Variation with Repetition
 - Variation without Repetition
 - Combinations
 - Symmetry of Combinations
 - Combinations with Separate Sample Spaces
 - Bayesian Inference
 - Sets and Events
 - Sets Interactions
 - Intersection of sets
 - Union of sets
 - Mutually exclusive sets
 - Dependence and Independence of Sets
 - Conditional Probability Formula
 - The Law of Total Probability
 - The Additive Rule
 - The Multiplication Law
 - Bayes' Law



- Distributions
 - Types of Probability Distributions
 - Discrete Distributions
 - Characteristics
 - Uniform Distribution
 - Bernoulli Distribution
 - Binomial Distribution
 - Poisson Distribution
 - Continuous Distributions
 - Normal Distribution
 - Standard Normal Distribution
 - Students' T Distribution
 - Chi-Squared Distribution
 - Exponential Distribution
 - Gaussian Distribution
 - Logistic Distribution
- Statistics
 - Population and Sample
 - Descriptive Statistics
 - Types of Data
 - Levels of Measurement
 - Categorical Variables
 - Numerical Variables
 - The Histogram
 - Cross Tables and Scatter Plots
 - Mean, Median, and Mode
 - Skewness
 - Variance
 - Standard Deviation and Coefficient of Variation
 - Covariance
 - Correlation Coefficient



- Inferential Statistics
 - Distributions
 - Normal
 - Standard Normal
 - Central Limit Theorem
 - Standard Error
 - Estimators and Estimates
 - Confidence Intervals
 - Population Variance Known: Z-Score
 - Student's T Distribution
 - Population Variance Unknown: T-Score
 - Margin of Error
 - Confidence Intervals: Two Means, Dependent
 - Confidence Intervals: Two Means, Independent
- Hypothesis Testing
 - Null vs Alternative Hypothesis
 - Rejection Region and Significance Level
 - Type I and Type II Error
 - Test for the Mean: Known Population Variance
 - P-value
 - Test for the Mean: Unknown Population Variance
 - Test for the Mean: Dependent Samples
 - Test for the Mean: Independent Samples
- Regressions
 - Linear Regression
 - Logistic Regression
 - Non-Linear Regression

Example Questions

- [109 Practice Questions From Springboard](#)
- [40 Practice Questions and Practice Question Sources From Analytics India Magazine](#)
- [Ace Data Science Interviews: Statistics From Toward Data Science](#)