

Statistics Study Guide

Exam 3

Be sure to carry over your knowledge from previous learning, especially in the areas of the logic and procedures for hypothesis testing and factors that influences whether or not to reject the null hypothesis.

Chapter 9 – One Sample t -Test

- Know when you must use the t -statistic rather than a z -score for hypothesis testing.
- Know the characteristics of the t -distribution and its relationship to sample size.
- Know the purpose and symbol for the estimated standard error.
- Know all the symbols and be able to perform all necessary computations for hypothesis tests with the t -statistic. This may include calculating the sample mean, variance, standard deviation, SS , and estimated standard error.

Chapter 10 – Two Sample t -Test: Independent Samples Design

- Know the meaning and characteristics of the following statistical terms and concepts: independent-measures design, between-subjects design, repeated measures design, within-subjects design, and homogeneity of variance.
- Know the experimental situations where an independent-measures t statistic is appropriate for statistical inference.
- Know the assumptions that must be satisfied before an independent-measures t test should be computed.
- Know all the symbols and be able to perform all necessary computations for hypothesis tests with the independent-measures t statistic about the mean difference between two populations (or between two treatment conditions).

Chapter 11 – Two Sample t -Test: Related Samples Design

- Know the difference between independent-measures and related samples experimental designs.
- Know the experimental situations where a repeated-measures t -statistic is appropriate for statistical inference.
- Know all the symbols and be able to perform all necessary computations for hypothesis tests with the related samples t -statistic.
- Know the assumptions that must be satisfied before a repeated-measures t -test should be computed.
- Know the advantages and disadvantages of using the repeated-measures design as opposed to an independent-measures design.

Chapter 12 – Confidence Interval versus Point Estimation

- Know the meaning and characteristics of the following statistical terms and concepts: estimation, point estimate, confidence interval.
- Know when it is appropriate to use estimation or confidence intervals.
- Be able to use sample data to make a point estimate or establish a confidence interval of an unknown population mean using the single sample t statistic.
- Be able to make a point estimate or establish a confidence interval using sample data from an independent-measures experiment or from a related-samples experiment.
- Know the factors affecting the width of a confidence interval.