

Statistics Study Guide

Exam 2

Chapter 5 – z-Scores and Other Standard Scores

- Understand the meaning and characteristics of z-scores and other standard scores and their relationship to means and standard deviations.
- Know the z-score formula.
- Convert raw scores to z-scores and z-scores to raw scores.
- Use z-scores to compare two or more scores in a distribution and to compare a score in one distribution with a score in another distribution.
- Convert raw scores to T-scores, IQ scores, SAT scores, and/or other transformed standard scores.

Chapter 6 – Probability and the Normal Distribution

- Know how to determine the probability of events.
- Describe the characteristics of the normal distribution curve.
- Determine the proportions/probabilities/percentages associated with specific z-scores and/or raw scores.
- Determine z-scores and/or raw scores associated with specific proportions/ probabilities/ percentages.

Chapter 7 – Sampling Distribution of Means

- Know the meaning and characteristics of a sampling distribution, in particular, the sampling distribution of means as defined by the Central Limit Theorem.
- Know the meaning of the standard error of the mean and be able to calculate and use it appropriately.
- Know the effect of sample size on the standard error of the mean.
- Using the z-score formula, be able to determine the probabilities of obtaining specific values for samples from a population with a known mean.
- Given a probability or percentage, be able to determine the value of sample means that would be expected.

Chapter 8 – Hypothesis Testing

- Understand the logic of hypothesis testing.
- Know the meaning and characteristics of the following statistical concepts: null hypothesis; alternative hypothesis (directional and non-directional); alpha level (level of significance); critical region; critical value; Type I error; Type II error, significance, effect size.
- Use the 4-step process to test a given hypothesis.
- Understand the purpose of measuring effect size and be able to compute Cohen's d.
- Understand what is meant by rejecting and failing to reject the null hypothesis, and the proper format for these conclusions.
- Understand the difference between a one-tailed test and a two-tailed test.
- Know the assumptions for the z-test.