

COM 365: INTRODUCTION TO COMMUNICATION RESEARCH METHODS

Unit Test 4 Study Guide

The test will cover the introductory materials from Chapters 11, 12, 13, & 14 in the Frey, Botan, & Kreps text as well as any handouts provided in class. Unit 4 Test may include multiple choice, true/false, short answer, definitions, short essay, and/or longer essay questions.

Students should be able to define, know when to use, and be able to interpret each of the types of quantitative data and related concepts provided below.

Review from Previous Units

Distinguish between Independent and dependent variables.

What are the differences between variables and attributes?

Review the four levels of measurement.

What is the difference between one-tailed and two-tailed hypotheses?

Review the Statistics Tree

Chapter 11: Describing Quantitative Data

Be able to define statistics, data analysis, and statistical data analysis.

Know the difference between descriptive and inferential statistical data analysis.

Distinguish between the three measures of central tendency (mode, median, mean) and the three measures of dispersion (range, variance, standard deviation).

Identify the importance of standard scores (z and Z) and how they are used.

Explain the visual displays that can be used to describe data (frequency tables, pie charts, bar charts, line graphs, frequency histograms, frequency polygons)

Chapter 12: Estimation and Significance Testing

Differentiate estimation and significance testing and how they are each used as types of inferential statistics.

What are the assumptions that must be met for estimation to occur? (p. 316 and 318)

What is the normal distribution?

What are the four descriptive concepts used to explain the shapes of non-normal distributions (kurtosis and skewness)

Describe the importance of random sampling to the process of estimation.

Explain the logic (pp. 325-329) and practice (pp. 329-330) of significance testing

What are the three steps involved in the process of significance testing (p.329-330)

How do researchers determine whether to accept or reject the null hypothesis?

Distinguish between Type I and Type II errors. Which is most serious?

Chapter 13: Analyzing Differences Between Groups

Differentiate chi-square, t and analysis of variance (ANOVA or *F*) tests. When is it appropriate to use each?

How is an independent-sample t test different from a paired-sample t test?

--How are degrees of freedom calculated for each?

What is the relationship between analysis of variance and a t test??

What is a multiple comparison test (sometimes called a follow-up or post-hoc test).

--When is it used?

How do main effects differ from interaction effects when using a factorial design?

Chapter 14: Analyzing Relationships Between Variables

What are the types of relationships which can occur between variables?

(unrelated, linear, nonlinear)

Distinguish between positive, negative, and curvilinear relationships.

What is a correlation coefficient? What two types of information does it provide?

(strength and direction of relationship)

How do researchers interpret correlation coefficients and degrees of freedom? (p. 360)

What are the differences between a Pearson's product moment correlation (Pearson's *r*) and a

Spearman Correlation coefficient (Spearman's rho)?

Explain the relationship between correlation and causation.