

Midterm Study Guide — PSY 444 — Spring, 2009

The midterm exam will be an in-class, closed book exam on Thursday, March 5th. The exam will cover material presented in class and in Crocker and Algina (1986). The exam will be in three parts as described below. The midterm will be worth 200 points.

Part 1: Definitions

This part of the midterm will consist of a number of terms drawn from the list below, which you must define in one or two sentences. For example, you might define the term, "test-retest reliability" as "Test-retest reliability is a form of estimating reliability by administering the same test to the same examinees at two points in time." You will have limited space in which to write your definitions, so longer answers are not necessarily better answers. Further, precise and concise definitions will earn more points than vague or "meandering" definitions.

absolute decisions	one-facet analysis
alternate forms reliability	p and q
Classical True-Score Model	Pearson product moment correlation
coefficient alpha	percentile ranks
composite score	relative decisions
covariance	reliability coefficient
criterion-referenced interpretation	reliability generalization
decision (D) study	reliability index
dichotomous item	residual
difference score	Rulon-Guttman split-half reliability
domain-sampling model	Spearman-Brown prophecy formula
facets and levels	Spearman-Brown split-half reliability
generalizability (G) study	split-half reliability
generalizability coefficient	standard deviation
Generalizability Theory	standard error of measurement
Hoyt's Method	standard error of the estimate
internal consistency	test
item difficulty	test theory
KR_{20}	test-retest reliability
linear combination	true score
mean square error	variance
measurement	variance-covariance matrix
measurement error	z-score
MS_{items}	
$MS_{persons}$	
norming	

Part 2: Short Answers

This section of the exam includes questions that require a response of perhaps two to four sentences each. These questions will require you to list, explain, compare, or contrast concepts related to test theory. Some, but not all, questions in this section of the exam will be drawn from the list below.

- Crocker and Algina (1986) discuss five problems with psychological measurement that require the study of test theory. What are these five problems?
- Explain one way in which variance and covariance are similar to each other and one way in which they are different from each other.
- How would one go about determining the mean of a composite score found by summing three components?
- How would one go about determining the variance of a composition score found by summing three components?
- How would one go about determining the covariance of two composites, each of which is comprised of two components?
- Describe the Classical True Score Model and define all terms and all assumptions.
- Why is the reliability of a composite score higher than the reliability of the components, whereas the reliability of a difference score is lower than the reliability of the components?
- How does the Spearman-Brown approach to split-half reliability differ from the Rulon-Guttman approach?
- Explain one way in which the standard error of the estimate and the standard error of measurement are similar to each other and one way in which they are different.

Part 3: Derivations, Demonstrations, and Calculations

This section of the exam will require you to make calculations, to demonstrate numerical relationships, and to derive one formula from another. You will be allowed to use a formula sheet of your own creation on one 8.5" by 11" sheet of paper. You may write on both sides of this sheet of paper, but you may only include formulas (and their labels). You may not add definitions, drafts of answers to practice questions, or other non-formula related text. Formula sheets that do not conform to these guidelines will be confiscated.
