

PSYCH 440 - PSYCHOLOGICAL MEASUREMENT I

Instructor: D.G. Bonett

Prerequisite: Introductory Statistics

Text: Kaplan, R.M. & Saccuzzo, D.P (2005) *Psychological Testing, 6th ed.*, Thompson.

Part I - Review of Elementary Statistics (weeks 1 - 4)

Scales of measurement; Gaussian (normal) distributions; percentiles and percentile ranks; standardized scores; interval estimation for population mean, proportion, standard deviation, correlation, and slope; prediction intervals; sample size requirements for interval estimation methods.
Chapters 1, 2, 3. **1st Midterm Examination**

Part II - Basic Psychometric Methods (weeks 5 - 9)

Reliability and measurement error; test-retest reliability; split-half and internal consistency reliability; reliability of binary responses; standard error of measurement; Spearman-Brown formula; estimating coefficient alpha; reliability of categorical rater judgements; types of validity evidence; incremental validity; statistical methods of assessing validity; confidence intervals for validity and reliability coefficients; item analysis; item discrimination; test sensitivity and specificity; types of item bias and test bias; estimating difference in slopes, correlations, and conditional means; biserial and tetrachoric correlations; sample size requirements for reliability and validity studies.
Chapters 4, 5, 6, 7. **2nd Midterm Examination**

Part III - Introduction to Advanced Topics (weeks 10 - 11)

Nontechnical introduction to item response theory, generalizability theory, factor analysis, discriminant analysis, and latent variable modeling.

Part IV - Applications (weeks 12 - 15)

Overview of popular ability tests, interest inventories, and personality tests; designing special questionnaires for survey research applications; item formats; questionnaire layout; methods to improve survey response rate; interviewing techniques; internet surveys; computerized testing; ethical considerations.
Chapters 8-14, 16, 21.

Final Comprehensive Examination (during finals week)

A total of 100 points may be earned on each examination and a total of 25 points may be earned on each of the four projects.