ITEM RESPONSE THEORY

INSTRUCTOR: Barbara G. Dodd

OFFICES: SZB 538L

OFFICE HOURS: Monday 1:00 - 3:00 and by appointment

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REQUIRED TEXT: Embretson, S. E. & Reise, S. P. (2000). *Item response theory for psychologists*. Francis &Taylor, Inc.

A packet of selected reading available from Jenn's Copy & Binding, 2200 Guadalupe St., (512) 473-8669.

COURSE REQUIREMENTS:

1. In-class exam over unit I
2. In-class exam over unit II
3. Review of an article from the literature
4. Assigned homework problems

EVALUATION: Grades will be based on an average of the first three requirements above, with each counting equally.

GRADES:

90% or more	A
85% to 89%	A-
80% to 84%	B+
75% to 79%	B
70% to 74%	B-
etc.	

ADA ACCOMMODATIONS:

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

RECOMMENDED SUPPLEMENTARY REFERENCES:

Applied Psychological Measurement (Special Issue), Advances in item response theory and applications. Fall, 1982. (Includes eight papers.)

Applied Psychological Measurement (Special Issue), Polytomous item response theory. Spring, 1995. (Includes seven papers.)

Baker, F. B. & Kim, S. (2004). *Item response theory: Parameter estimation techniques*. (2nd ed.). New York: Marcel Dekker.

de Ayala, R. J. (2009). *The theory and practice of item response theory*. New York: The Guildford Press.

Hambleton, R. K. & Swaminathan, H. (1985). *Item response theory: Principles and applications*. Boston: Kluwer Nijhoff Publishing.

Hambleton, R. K., Swaminathan, H., & Rogers, H. J. (1991). *Fundamentals of item response theory*. Newbury Park, CA: Sage Publications, Inc.

Journal of Educational Measurement (Special Issue), Applications of latent trait models. Summer, 1977. (Includes six papers.)

Lord, F. M. (1980). *Applications of item response theory to practical testing problems*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Lord, F. M. & Novick, M. R. (1968). *Statistical theories of mental test scores*. Reading MA: Addison-Welsley Publishing Company.

Nering, M. L., Ostini, R. (Eds.) (2010). Handbook of polytomous item response theory models, New York: Routledge.

Rasch, G. (1980). *Probabilistic models for some intelligence and attainment tests*. Chicago: University of Chicago Press.

van der Linden, W. J. & Hambleton, R. K. (Eds.) (1997). *Handbook of modern item response theory*. New York: Springer.

OUTLINE OF TOPICS AND REQUIRED READING ASSIGNMENTS:

TOPICS	READING
I. Background and Theory	
A. Classical test theory	Ch. 2
B. Assumptions of item response theory	Ch. 3
C. Dichotomous item response theory models	Ch. 4
D. Polytomous item response theory models	Ch. 5
E. Ability scales	Ch. 6
F. Estimation of ability	Ch. 7
G. Item calibration	Ch. 8 and Ch. 13
II. Applications	
A. Data Simulations	
B. Model-data fit	Ch. 9
C. Information functions	
D. Computerized adaptive testing	Ch. 10
E. Linking scales	Ch. 10
F. Test assembly/redesign	Ch. 10
G. Cognitive and developmental assessment	Ch. 11
H. Personality and attitude assessment	Ch. 12

TENTATIVE SCHEDULE:

1/26 introduction, classical test theory
2/2 Wright article, probability
2/9 assumptions, 1PL, 2PL, 3PL
2/16 dich., MIRT, testlet models
2/23 poly. models: GR, MRS
3/2 PC, GPC, ARS, SIM
3/9 NR, estimation, data simulation
3/16 SPRING BREAK
3/23 data calibration in lab & review
3/30 Test I, fit
4/6 information, CAT
4/13 linking, test assembly
4/20 AERA no class time to work on article review
4/27 article review due, cognitive assessment, personality, attitude & review
5/4 Test II