

Computerized Adaptive Testing

INSTRUCTOR: Barbara G. Dodd

OFFICE: SZB 538L

OFFICE HOURS: Monday and Wednesday, 1:00 to 2:30 and by appointment

PHONE: 471-0188

EMAIL ADDRESS: BG.DODD@MAIL.UTEXAS.EDU

REQUIRED TEXTS:

Wainer, H., Dorans, N.J., Eignor, D., Flaugher, R., Green, B.F., Mislevy, R.J., Steinberg, L., & Thissen, D. (2000). *Computerized adaptive testing: A primer* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Two packets: 1) selected readings and 2) course notes are available from Jenn's Copy & Binding, 2200 Guadalupe St., (512)482-0779

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.

COURSE REQUIREMENTS:

1. In-class exam over unit I
2. Class discussion leader on a journal article
3. Group research proposal and presentation

EVALUATION:

Grades will be based on an average of the three requirements above, with each component counting equally. Assignments 2 and 3 require a handout to accompany each presentation.

RECOMMENDED SUPPLEMENTARY REFERENCES:

- Duani, Y., von Davier, A., & Lewis, C. (2014). *Computerized multistage testing: Theory and applications*. Chapman & Hall.
- Mills, C. R., Potenza, M. T., Fremer, J.J., & Ward, W. C. (2002). *Computer-based testing: Building for future assessments*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Parshall, C. G., Spray, J. A., Kalohn, J. C., & Davey, T. (2002). *Practical considerations in computer-based testing*. New York:Springer-Verlag New York, Inc.
- Sands, W. A., Waters, B. K., & McBride, J. R. (Eds.). (1997). *Computerized adaptive testing: From inquiry to operation*. Washington, DC: American Psychological Association.
- Van der Linden, W. J. & Glas, C. A. W. (Eds.). (2000). *Computerized Adaptive Testing: Theory and Practice*. Dordrecht, Netherlands: Kluwer Academic Publishers.

Outline of Topics and Required Reading Assignments

TOPICS	READING
I. CAT systems based on dichotomous IRT models	
A. History	Wainer, Ch. 1; Sands, Ch. 5
B. System Requirements	Wainer, Ch. 2;
C. Item Banking Techniques	Wainer, Ch.3 & 4; Sands, Ch. 11;
D. Components of CAT Algorithms	Wainer, Ch. 5; Sands, Ch.12 & 11 Leroux, Lopez, Hembry & Dodd
E. Reliability	Wainer, Ch. 7; Sands, Ch. 17
F. Validity	Wainer, Ch. 8; Sands, Ch. 17
G. Score Reporting	Wainer, Ch. 6; Sands, Ch. 26;
II. CAT systems based on polytomous IRT models	
A. Components of CAT Algorithms	Dodd, De Ayala, & Koch Boyd, Dodd, & Choi Gorin, Dodd, Fitzpatrick, Shieh Choi, Grady, & Dodd
B. Item Exposure Control	Davis & Dodd Davis Boyd, Dodd & Fitzpatrick
C. Item Selection	Choi & Swartz Murphy, Dodd, & Vaughn Ho & Dodd
D. Multistage Testing	Kim, Chung, Park, & Dodd Kim & Dodd
III. Applications	Journal Articles
IV. Caveats	Wainer, chapter 10
V. Research Proposal	

Tentative Schedule

8/28 Introduction / Research Teams / History
9/4 Systems / Item Banking
9/11 CAT Components
9/18 CAT Components / GPCCAT
9/25 CAT Components
10/2 Class Study
10/9 Reliability & Validity / Score Reporting
10/16 Exam / Poly CAT
10/23 Poly CAT
10/30 Poly CAT / MST
11/6 Article Presentations 1, 2, 3, & 4
11/13 Article Presentations 5, 6, 7, & 8
11/20 Research Project 1 & 2
11/27 Research Projects 3 & 4
12/4 Caveats, CIS

Exam 10/16