
University of Michigan

**Department of
Statistics Seminar**



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Speaking on

**Computerized Adaptive Testing (CAT): Issues and
Possible Solutions to Some of Them**

Computerized Adaptive Testing (CAT) was introduced to the testing field about three decades ago and has received a great deal of attention ever since. The implementation of CAT in large-scale, high-stakes, continuous testing programs, such as the Graduate Record Exam (GRE) and the Graduate Management Admission Test (GMAT), gave rise to a heated debate about a number of practical issues. These issues include:

- (1) test security breaches, when earlier test takers share their items over the Internet and later test takers therefore have knowledge about them;
- (2) content balancing, when additional procedures are needed to ensure that every test taker receives a test that has adequate and fair content coverage;
- (3) test fairness, when tests differ in terms of how time-consuming they are and how much reading is involved;
- (4) scoring mechanisms, when test takers receive spuriously low scores due to inadvertent errors at the beginning of the test; and
- (5) testing mode effects, when low-SES test takers who are not familiar with computers receive a lower score on CATs than on their pencil-and-paper counterparts.

A method is offered that can handle the first three issues altogether. The method is compared to the current industry standard in a simulation study and the results indicate that the new method outperforms the industry standard in nearly every aspect.

**Wednesday, February 6, 2008 at 10:00 am
1322 School of Education (Tribute Room)**
