

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, March 15, 2005
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Generalized Latent Variable Modeling
(with an application assessing applicants to a Ph.D. program)

Abstract:

Latent variables are ubiquitous in the social sciences: micro-level examples include traits such as ideology, partisanship, and intelligence, while macro-level examples include support for political candidates or a regime, levels of democracy, or military or terrorist threat. In many applications, interest focuses on not only the latent variables, but also on assessing the quality of the indicators of the latent variables. I state the problem in general terms, and adopt a Bayesian approach to estimation and inference. The approach adopted here overcomes the restrictions imposed by traditional methods for multivariate analysis used in the social-sciences and is easily extended in interesting directions (e.g., inferences over rank orderings of the latent variables). The application considered in the talk is the problem of assessing 279 applicants to a political science Ph.D. program: “applicant quality” is the latent trait, with GRE scores and an eight-member admissions committee’s (incomplete) ordinal ratings serving as the indicators, with the goal being to (more or less) authoritatively determine which subset of applicants to admit to the Ph.D. program.