

MINI-SEMINAR FOR FIRST-YEAR PH.D. STUDENTS

Department of Statistics

**Variable Selection and Shrinkage Comparison  
of Some Approaches**

by

Michele Glatter

Department of Statistics, University of Chicago

Wednesday, May 26, 2004, 5:30 pm in Eckhart 110  
5734 S. University Avenue

**ABSTRACT**

A common strategy within the framework of regression models is the selection of variables with possible predictive power which are incorporated into the regression model. Newer methods, such as Breiman's Garotte (BREIMAN 1995) and Tibshirani's Lasso (TIBSHIRANI, 1996) combine the methods of variable selection and shrinkage. In this paper, we compare these methods with pure variable selection and shrinkage. We consider backward selection as our typical selection procedure and a global shrinkage approach proposed by Van Houwelingen and Le Cessie (1990). The ordinary least squares method is used as a reference.

Using a simulation study, we will compare these approaches with respect to the distribution of the complexity of the selected model, the distribution of shrinkage factors, and the selection bias.