

The University of Chicago

Department of Statistics

Seminar

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**“Extensions of the Plaid Model for Two-Way
Clustering of Microarray Data”**

**Monday, April 7, 2003 at 4:00 PM
133 Eckhart Hall, 5734 S. University Avenue**

ABSTRACT

DNA microarrays allow the simultaneous measurement of gene expression for a large number of genes on experimental samples obtained under a variety of conditions. This design permits the observation of regulatory patterns shared by groups of genes across experiments. Traditional cluster analysis partitions the genes or the samples into a set of exhaustive, mutually exclusive clusters, implying that each gene or each sample responds to exactly one biological process. Art Owen and I introduced the plaid model as a form of cluster analysis in which genes and samples may belong to one, more than one, or no clusters. The clusters are two-sided reflecting the fact that groups of genes may be co-regulated in some experimental samples and not others. An additive two-way ANOVA model within each cluster allows each gene and each sample to exhibit the regulatory pattern of the cluster at its own response level. This talk describes some recent extensions of the model that include experimental covariates and are intended to yield improved interpretation. Examples will include both microarray and non-microarray data. No knowledge of microarrays or gene expression will be assumed.

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