

The Fox School of Business

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Department of Statistics



Temple University

ANNOUNCES A
COLLOQUIUM

Dr. James D. Delaney

*Department of Statistics
Carnegie Mellon University*

will speak on

Analysis of Experiments Using Empirical Bayes Techniques

Time: 3:00 – 4:00 PM

Date: Wednesday, December 12, 2007

Place: Speakman Hall 394

Abstract

Not uncommon are designed experiments with the primary purpose being to determine optimal settings for all of the factors in some predetermined set. The usual frequentist approach to analyzing such experimental data is to first find the set of significant effects via variable selection techniques that are based on some statistical significance criterion. The next step would be choosing a factor setting that optimizes the estimated response, a linear model of this reduced set of effects. In the course of applying these techniques, at least two types of technical difficulties may be encountered. The first problem arises from aliasing. The second problem arises from an uninformed selection of statistical significance level. We believe that by taking a Bayesian perspective, these issues can be resolved. We propose the use of functionally induced priors in estimation to avoid the problems due to aliasing. Then we recommend Empirical Bayes estimation and factor screening based on a practical significance level in order to avoid the problems in model selection due to statistical testing.

* Joint work with V. R. Joseph

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