

# BS772: Topics in Biostatistics

Fall Semester, 2004-2005: Fridays, 2:30-5 PM  
Statistical Methods in Functional Genomics

This course will be taught seminar style at an advanced level.

Prerequisites:

BS701, BS706 or BS703

(or the equivalent as determined by the instructor).

The purpose of this course is to present some of the methods for the analysis of gene expression data measured through microarrays. The course will start with a review of the basic biology of gene expression and an overview of microarray technology. The course will then describe the statistical techniques currently used to compare gene expression across different conditions and it will progress to describe the analysis of more complex experiments designed to identify genes with similar functions and to build models for molecular classification. The statistical techniques described in this course will include regression, discriminant analysis, clustering, classification, and simple graphical models. Methods for computational and biological validation will be discussed. Students will apply these methods in homework assignments and a final project. 4 credits

Text: S. Kohane, A. Kho and A. J. Butte (2002) *Microarrays for an Integrative Genomics* The MIT Press.

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