

DEPARTMENT OF BIOSTATISTICS AND BIOINFORMATICS SEMINAR

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Tall & Wide: Biostatistics Meets Bioinformatics Over Complex Data

By

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Abstract:

In this talk, I describe two novel, nonparametric analytical approaches for analyses of “wide” problem, “tall” data. A common theme between them is the application of U-statistics to construct hypotheses within the confine of very few samples from data of very high dimension (tall data) for which several comparisons (wide problems) are of interest. In the extreme case of data from several single sample groups to be compared from a microarray experiment, I introduce the concept of stochastic linear hypotheses that generalizes the Mann-Whitney Wilcoxon rank sum test to accommodate greater than two group comparisons in a multivariate setting. In the case of several dimensions of data and information, I introduce the concept of query-based comparisons to filter tumor suppressor genes. As motivation for the methods, I focus on two applications of array technologies in cancer areas; one for relating gene expression differences to hypothesized pathways of T cells, and a second that examines the confluence of methylation and expression changes to define efficacy of epigenetic-based therapies in clinical trials.

Friday, April 9, 2010
12:00 noon - 1:00 p.m.

Nell Hodgson Woodruff School of Nursing, Room 114

Emory University, Nell Hodgson Woodruff
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1520 Clifton Rd., N.E., Room 114

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