*For favour of posting*

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar


## Dr. Catherine LIU Chunling

Biostatistics and Bioinformatics Branch
NICHD, National Institutes of Health
USA


will give a talk

entitled

# A RANK-BASED TEST FOR COMPARISON OF MULTIDIMENSIONAL OUTCOMES


Abstract

For comparison of multiple outcomes commonly encountered in biomedical research, Huang et al. (2005) improved O'Brien's (1984) rank-sum tests through the replacement of the ad hoc variance by the asymptotic variance of the test statistics. The improved tests control the Type I error rate at the desired level and gain power when the differences between the two comparison groups in each outcome variable lie in the same direction. However, they may lose power when the differences are in different directions (e.g., some are positive and some are negative). These tests and the popular Bonferroni correction failed to show important significant difference when applied to compare heart rates from a clinical trial to evaluate the effect of a procedure to remove the cardioprotective solution HTK. We propose an alternative test statistic, taking the maximum of the individual rank-sum statistics, which controls the type I error rate and maintains satisfactory power regardless of the directions of the differences. Simulation studies show the proposed test to be of higher power than other tests in a certain alternative parameter space of interest. Furthermore, when used to analyze the heart rate data, the proposed test yields more satisfactory results.


on

**Wednesday, December 9, 2009**

**2:00 p.m. – 3:00 p.m.**

at

**Room 524, Meng Wah Complex**
**(behind the Chong Yuet Ming Amenities Centre)**

**Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 2859 2466 for parking arrangement.**

All interested are welcome