

DEPARTMENT OF STATISTICS AND BIOSTATISTICS

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*Permutation tests based on likelihood like statistics***October 5, 2016****3:20 – 4:20pm**

Light refreshments will be served

**110 Frelinghuysen Road
Hill Center, Room 552**

Abstract: We consider permutation tests based on likelihood ratio like statistics for three cases: complete block designs, one way or k -sample designs and one way or k -sample designs where the observations are d -dimensional vectors. First we look at permutation methods for paired comparison tests and two sample tests, considering asymptotic approximations obtained in these simple cases where the test statistic is simply based on means of differences or differences of means. In the three cases considered we develop statistics based on empirical cumulant generating functions and give saddlepoint approximations for the permutation tests. Numerical examples are given to illustrate the accuracy of the saddlepoint approximation and the improvement in the power of the tests compared to the classical statistics in the case of long tailed error distributions and no loss of power for normal error distributions.

Bio: Emeritus Professor John Robinson joined the faculty of the University of Sydney in 1964, teaching first in the Faculty of Agriculture and moving in 1966 to the Department of Mathematical Statistics. His research interests have included experimental design, asymptotic approximations in nonparametric statistics, saddlepoint approximations, multivariate analysis and modelling in neurophysiology and phylogenetics.

