McMASTER UNIVERSITY

GRADUATE PROGRAM IN STATISTICS

STATISTICS SEMINAR

Speaker: Dr. Abdul Hussein, Department of Mathematics and Statistics, University of Windsor

Title: *"Some Parametric Sequential Tests Based on Strong Approximation Principles"*

Day: Tuesday April 5, 2005

Time: 3:30 - 4:30 PM

Place: HH/217 – Deloitte Colloquium Room (refreshments in HH/216 at 3:00 PM)

SUMMARY

Despite the huge developments in sequential testing methodology in the past century, sequential tests in the presence of nuisance parameters remained underdeveloped. Recently, Gombay (1996) has proposed an approach based on weighted generalized likelihood ratio statistics for performing sequential testing in the presence of nuisance parameters. In this talk, we develop, along the lines of Gombay (1996), two-sample sequential testing procedures using weighted versions of Score and Wald statistics in the presence of nuisance parameters. Extension of these methods to the multi-sample case (ANOVA and similar) will be discussed. We assess the performance of the test procedures in terms of power, alpha and average stopping times (average sample sizes) relative to the fixed sample and group sequential t-tests.

REEFERENCES

Gombay, E. (1996) "The Weighted Sequential Likelihood Ratio," *Canadian Journal of Statistics* **24**, pp. 229-239.

Csörgo, M. & Horváth, L. (1993) *Weighted Approximations in Probability and Statistics*, Wiley.

Jennison, C. & Turnbull, B. W. (2000) *Group Sequential Methods with Applications to Clinical Trials*, Chapman & Hall/CRC.

Wald, A. (1947) *Sequential Analysis*, Dover Publications Inc., NY.

ABOUT THE SPEAKER. Dr. **Abdul Hussein** is an Assistant Professor of Statistics in the Department of Mathematics and Statistics at University of Windsor. He obtained a B.Sc. in applied mathematics from the University of Trieste, Trieste, Italy and a M.Sc. in pure mathematics from the International Centre for Theoretical Physics at Trieste, Italy. He Completed a M.Sc. and a Ph.D. in statistics in the years 1999 and 2003, respectively, at the University of Alberta, Edmonton. Hussein's areas of research interest include sequential and group sequential analysis, survival analysis and finite mixture models.

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