McMASTER UNIVERSITY

GRADUATE PROGRAM IN STATISTICS

STATISTICS SEMINAR

Speaker: Dr. Ilham Akhundov, Department of Mathematics and
Statistics, McMaster University

Title: *"Characterizations of Distributions Based on Regression and
Related Statistics"*

Day: Tuesday February 8, 2005

Time: 3:30 - 4:30 PM

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

SUMMARY

The theory of order statistics provides many useful distributional equations for specific underlying distributions. The question then arises of whether an order statistics distribution equation is a characteristic property of the corresponding distribution. In this talk we will use the constancy of the conditional expectation of some appropriate functions of order statistics on some others to characterize a new general family of distributions. A surprising fact is that the simplest Student (t_2) distribution is among these distributions. We will also discuss some simple properties of this family of distributions. As it turns out, the new family can approximate a number of common distributions such as Tukey lambda, Cauchy and Gumbel (for the maximum).

REEFERENCES

1. Balakrishnan, N. & Akhundov, I. (2003) "A Characterization by Linearity of Regression Function Based on Order Statistics," *Statistics & Probability Letters* **63**, p. 435-440.
2. Akhundov, I., Balakrishnan, N. & Nevzorov, V. (2004) "New Characterizations by Properties of Midrange and Related Statistics," *Communications in Statistics -Theory and Methods* **33**(12), pp. 3133-3145.

ABOUT THE SPEAKER: Dr. **Ilham Akhundov** received his MS and Ph.D. degrees from Saint-Petersburg State University under the supervision of Prof. Valery Nevzorov. His research interests include limit theorems for order statistics based on cumulative sums, extremes and heavy tailed phenomena, first passage times and maximum sums, and characterizations. Akhundov was a Fulbright Fellow at Texas A&M University from September 1999 to September 2000. During his tenure in Mathematics Departments of Azerbaijan State Economic University and the Fatih University in Turkey he taught various courses in mathematics and statistics for under-graduate and graduate students. Akhundov joined the Department of Mathematics and Statistics at McMaster University in January 2002. (Picture by Cheryl McGill, 2002).

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