MATHEMATICS RESEARCH SEMINAR

3:30-4:30 Friday November 18, 2005

104 University Hall

ON LINEAR BIRTH PROCESSES II

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ABSTRACT: This talk is a continuation of my on-going collaboration with Dr. Ceyhan Inal of Hacettepe University, Turkey, regarding an interest in estimating initial size and birth rates for the linear birth process. This involves a sampling of size j from a population of unknown size n that is expanding at a linear rate of l starting at $l * n$. We will re-visit older published literature on this topic including the article by Goudie and Goldie (1981) and Hoffman (1992) and recent correspondence between Dr. Inal and myself and a contribution by Dr. Selwyn Hollis (Armstrong Atlantic State University, Savannah). I include enough mathematical background to allow the audience to understand the shortcomings of certain approaches used to generate estimators for the size and rate parameters. Topics include the construction of a joint density function of sojourn times, maximum likelihood estimation and optimization techniques. We will examine progress on the Hoffman conjecture that surmises that the probability that the maximum likelihood function has a unique maximum approaches 1 as sample size j grows.