UNIVERSITY OF SYDNEY

SCHOOL OF MATHEMATICS AND STATISTICS

Statistics Seminar

Friday, 25 November, 2.00pm

Carslaw 173

A Survey of Generalized Inverses and their Use in Stochastic Modelling

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Abstract

In many stochastic models, in particular Markov chains in discrete or continuous time and Markov renewal processes, a Markov chain is present either directly or indirectly through some form of embedding. The analysis of many problems of interest associated with these models, eg. stationary distributions, moments of first passage time distributions and moments of occupation time random variables, often concerns the solution of a system of linear equations involving I - P, where P is the transition matrix of a finite, irreducible, discrete time Markov chain.

Generalized inverses play an important role in the solution of such singular sets of equations. In this paper we survey the application of generalized inverses to the aforementioned problems. The presentation will include results concerning the characterization of types of generalized inverses associated with Markovian kernels and the analysis of perturbed systems.

Enquiries about the Statistics Seminar should be directed to
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