



Temple University

ANNOUNCES A  
COLLOQUIUM

**Dr. Alicia Johnson**

*University of Minnesota*

will speak on

## **Establishing Geometric Ergodicity for Block Gibbs Samplers**

**Time: 3:30 – 4:30 PM**

**Date: Friday, February 13, 2009**

**Place: Speakman Hall 113**

### **Abstract**

The popularity of Markov chain Monte Carlo (MCMC) techniques continues to grow due to a significant demand for reliable methods that can be used to explore intractable probability distributions. One hopes that whatever MCMC algorithm is employed the simulation will relatively quickly produce a representative sample from the target population. Thus the convergence rate of the associated Markov chain is of practical and theoretical importance. I will discuss sufficient conditions ensuring the geometric rate of convergence of a Markov chain. I then use this to construct practical, yet theoretically sound recipes that can be used to establish these conditions for the block Gibbs sampler under a generic model setting. As an illustration, geometric ergodicity is established for a block Gibbs sampler for a popular Bayesian version of the general linear mixed model. Besides generally ensuring the rapid convergence required for useful simulation, geometric ergodicity is a key sufficient condition for the existence of a central limit theorem and for consistent estimation of Monte Carlo standard errors. Thus my results allow practitioners to be as confident in the results obtained via the Gibbs sampler as they would if it were possible to simulate directly from the target distribution.

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