The **Department of Mathematical Sciences** presents a colloquium with

Professor **Sujit K. Ghosh**

North Carolina State University and SAMSI

Thursday, March 2, 2017
4 – 5:30 pm
Room 425 Tangeman University Center

Nonparametric Models for Gaussian Processes with Applications to Spatial and Longitudinal Data

Analysis of longitudinal and spatial data are often based on Gaussian processes that are typically based on an assumed parametric class of stationary covariance functions (e.g., Matern, periodic, rational quadratic etc.). Majority of these finite dimensional (parametric) models for the covariance function may not be adequate to capture underlying correlation structure, especially when the spatial and/or the temporal scale of the data is very large. Moreover estimation methods for such parametric models for covariances become computationally demanding as they involve inversion of large unstructured matrices which may not be sparse. In order to alleviate some of these challenges, a suitably truncated Karhunen-Loeve expansion of the Gaussian Process is approximated in which both the mean and the covariance functions are simultaneously approximated by a sieve of Bernstein polynomials with varying degrees. Theoretical convergence of the approximation is established under some mild regularity conditions. The proposed models and associated inference are illustrated using both simulated and real data analysis.

Refreshments will be served 3:15 – 3:45 pm
in the Faculty & Graduate Student Lounge
Room 4118 French Hall West

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