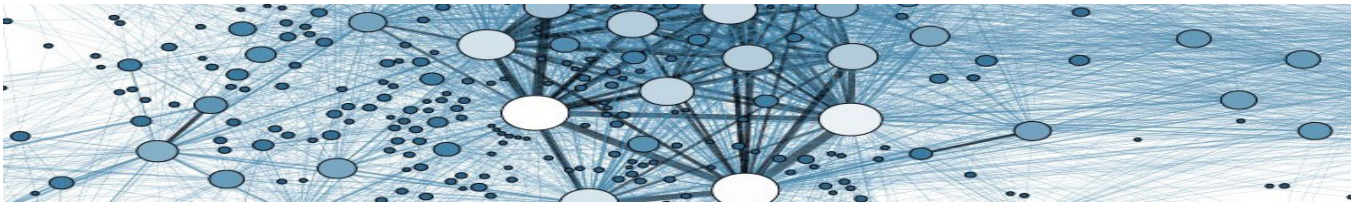

Department of Statistics Seminar

Tuesday, April 11, 2017

3:45 – 4:45 p.m., Room 420, Olmsted Hall

Reception in Olmsted 1331 at 3:15 p.m.

High Dimensional Bayesian Geostatistics

Sudipto Banerjee, Ph.D.

Professor and Chair, Dept. of Biostatistics

UCLA Fielding School of Public Health

Los Angeles, CA

Abstract:

With the growing capabilities of Geographic Information Systems (GIS) and related software, statisticians today routinely encounter spatial data containing observations from a massive number of locations and time points. Important areas of application include environmental exposure assessment and construction of risk maps based upon massive amounts of spatiotemporal data. Spatiotemporal process models have been, and continue to be, widely deployed by researchers to better understand the complex nature of spatial and temporal variability. However, fitting hierarchical spatiotemporal models is computationally onerous with complexity increasing in cubic order for the number of spatial locations and temporal points. Massively scalable Gaussian process models, such as the Nearest-Neighbor Gaussian Process (NNGP), that can be estimated using algorithms requiring floating point operations (flops) and storage linear in the number of spatiotemporal points. The focus will be on a variety of modeling and computational strategies to implement massively scalable Gaussian process models and conduct Bayesian inference in settings involving massive amounts of spatial data.

Biography:

Dr. Banerjee is a Professor and Chair of Biostatistics at the University of California, Los Angeles. He earned his Ph.D. in Statistics from the University of Connecticut in 2000. He also earned his M.STAT. from the Indian Statistical Institute, Calcutta, India, in 1996. Dr. Banerjee's research interests include (i) Statistical modeling and analysis of geographically referenced datasets; (ii) Bayesian statistics [theory and methods] and hierarchical modelling; and (iii) statistical computing and related software development.