

Applied and Computational Mathematics and Statistics Colloquium

Wenjiang Fu

Department of Biostatistics
Michigan State University

will give a lecture entitled:

Challenges in Statistical Analysis of Complex / High Dimensional Data

Wednesday, February 16th, 2011
4:00 PM

Location: 129 Hayes-Healy Center

Abstract:

Massive data have been generated in the past decade thanks to the growing demand of information and popularity of super-computers in administration, business, engineering, entertainment, industry, and scientific research. The incumbent task is to decipher these massive data and make good use of them for better understanding of complex structure of the mother-nature through scientific modeling. The complex settings and the high dimensionality of data require scientists from different disciplines to collaborate and to jointly model and analyze the data. This posts challenges in statistical modeling, particularly in variable selection, dimension reduction, and requires innovative thinking about how to efficiently utilize the available data information to optimize the outcome.

In this talk, I will provide a number of examples to demonstrate how statistical theory and modeling can be used to solve real world problems. Specifically, I will demonstrate with data in epidemiology and public health, sociology, and genomics studies, including cancer incidence and mortality rate data in health research, homicide arrest rate data in social research, and single nucleotide polymorphisms (SNPs) microarray data in case control genome-wide association studies (GWAS).