



Temple University

ANNOUNCES A
COLLOQUIUM

Dr. Marc G. Genton

*Texas A&M University
Department of Statistics*

will speak on

Functional Boxplots for Complex Data Visualization

Time: 3:00 – 4:00 PM

Date: Friday, November 12, 2010

Place: Speakman Hall 318

Abstract

We propose an informative exploratory tool, the functional boxplot, for visualizing functional data, as well as its generalization, the enhanced functional boxplot. Based on the center outwards ordering induced by band depth for functional data, the descriptive statistics of a functional boxplot are: the envelope of the 50% central region, the median curve and the maximum non-outlying envelope. In addition, outliers can be detected in a functional boxplot by the 1.5 times the 50% central region empirical rule, analogous to the rule for classical boxplots. The construction of a functional boxplot is illustrated on a series of sea surface temperatures related to the El Nino phenomenon and its outlier detection performance is explored by simulations. As applications, the functional boxplot and enhanced functional boxplot are demonstrated on children growth data and spatio-temporal U.S. precipitation data for nine climatic regions.