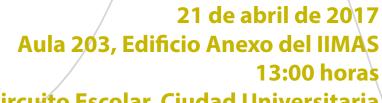IIMAS
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ROBUST INFERENCE IN FUNCTIONAL DATA ANALYSIS

In the last twenty years, a substantial amount of attention has been drawn to the field of functional data analysis. While the study of the probabilistic tools for infinite dimensional variables started in the beginning of the 20th century, the development of statistical models and methods for functional data has only really been developed in the last two decades since many scientific fields involving applied statistics have started measuring and recording massive continuous data due to rapid technological advancements. The methods developed in this field mainly require homogeneity of functional data, namely free of outliers. However, the development of methods in the presence of outliers has just been recently studied. In this talk, we focus on the effect of outliers on functional data analysis techniques. Then we introduce robust estimation and variable selection methods for a special functional regression model as well as simultaneous confidence band for the Mean Function of functional data. Simulation studies and data applications are presented to compare the performance of the proposed methods with the non-robust techniques.

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