Series Editor, Shanti S. Gupta

Empirical Processes by Peter Gaenssler

This volume is mainly concerned with Glivenko-Cantelli results for empirical measures and with functional Central Limit Theorems for empirical C-processes. Specifically, the functional Central Limit Theorems assume independent, identically distributed observations in arbitrary sample spaces and are derived using a general theory of weak convergence for non-Borel measures on a metric space. This theory, initiated by R.M. Dudley and further studied by M.J. Wichura, is developed here in full and in a context that leads to a broad unification and simplication of previous methods for obtaining functional Central Limit Theorems. The approach applies to results beginning with Donsker's famous theorem for the uniform empirical process up to the most general cases known today.

The basic point of view of this volume is probabilistic, but it is hoped that the presentation, with its set-indexed context, might also lead to new approaches to inference for spatial data.

The main topics covered are as follows:

Glivenko-Cantelli convergence
  The Vapnik-Chervonenkis Theory with some extensions

Weak convergence of non-Borel measures on a metric space
  Portmanteau Theorem
  Continuous mapping theorems
  Product spaces
  Sequential compactness
  Skorokhod-Dudley-Wichura Representation Theorem
  The space D[0, 1]
  Random change of time

Functional Central Limit Theorems
  For empirical C-processes
  For weighted empirical processes

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