EMPIRICAL PROCESSES WITH APPLICATIONS TO STATISTICS.

This book deserves enthusiastic recommendation. It is

Contents:

1. Introduction and survey of results
2. General stochastic processes
3. Conditions for convergence
4. Second order results
5. Poisson and exponential representations
6. Approximation of processes
7. Censored data
8. Estimation of distribution functions
9. Estimation of quantiles
10. Limit theorems
11. Large deviations
12. Empirical processes
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Appendix A: Inequalities and miscellaneous topics
Appendix B: Counting processes martingales

References:

Readership: Probabilists, mathematical statisticians

This is a very good book, and a timely one.

It is about 50 years since Kolmogorov introduced the
statistic which bears his name, and began a literature
on the empirical distribution function and em-
pirical process which has over the years become a
torrent. This book contains an impressive coverage of
this literature.

A logical development of the theory of the
empirical and related processes is given, with care-
ful attention to rigour except where the authors
state otherwise (and then a reference is usually
given). It is set out to be given as a graduate
course, and a useful flowchart shows the connections
between chapters. A thorough knowledge of modern
probability theory and techniques is essentially
these are carefully presented at the beginning.
Basic ideas discussed include those of weak conver-
gence, the Skorohod construction of processes, and
various representations of processes; with these
tools the complete behaviour of the processes is
discussed in subsequent chapters.

Many of the most important statistical uses
of the processes are surveyed, including goodness-
of-fit tests, uses of spacings, rank tests, linear
combinations of order statistics, and the bootstrap.
These themselves have a vast literature, and the
abridged account given naturally reflects the
authors' interests. Asymptotic results are usually
covered well; often, useful tables are included.
Practical details such as power results are less
fully treated, but a brief guide is often given.

The style is clear and crisp, with helpful
comments to guide one through a long proof, or
interesting cross-reference to other sections of
the book. Unfortunately neither the sections nor
the page headings reveal the chapter, so that it is
difficult, especially in a book of nearly one thousand
pages, to trace back to earlier sections. This
oversight on the part of the publisher mars an
otherwise excellent and clear presentation. It is partly
offset, but not enough, by an extremely detailed
content, eighteen pages; the list given here is the
abridged version.