

Ferguson, Thomas S.

A course in large sample theory. (English) Zbl 0871.62002

London: Chapman & Hall. ix, 245 p. (1996).

This book is a text-book for a graduate course on large sample theory. The students could be from Mathematics, and also from Biostatistics, Biomathematics, Engineering, Economics, Business, and other fields. It is not assumed that the students have a background in measure-theoretic analysis or probability, but an undergraduate course in analysis is needed as well as a good undergraduate course in mathematical statistics. This book consists of 24 sections. Each section treats a specific topic and the basic idea or central result of the section is stated as a theorem. The sections are grouped into four parts.

In the first part, basic notions of limits in probability theory are treated. The second includes basic tools in statistical asymptotic theory, such as Slutsky's theorem and Cramér's theorem, and derives the asymptotic distribution and power of Pearson's chi-square. The third part treats some time series statistics, some rank statistics and distributions of quantiles and extreme order statistics. The last part contains a treatment of standard statistical techniques including maximum likelihood estimation, the likelihood ratio test, asymptotic normality of Bayes estimates and minimum chi-square estimation.

The material in this book is constructed in consideration of the student who wants to learn techniques of large sample theory on his/her own. The book has many exercises, and solutions to all exercises may be found in the appendix. There is easily enough material in the book for a one-semester course.

Reviewer: [Chen Guijing \(Hefei\)](#)

MSC:

- [62-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to statistics Cited in **169** Documents
- [62E20](#) Asymptotic distribution theory in statistics
- [62F05](#) Asymptotic properties of parametric tests
- [62F12](#) Asymptotic properties of parametric estimators
- [62G20](#) Asymptotic properties of nonparametric inference

Keywords:

large sample theory; Slutsky's theorem; Cramer's theorem; asymptotic distribution; Pearson's chi-square; time series statistics; rank statistics; distributions of quantiles; extreme order statistics; maximum likelihood estimation; likelihood ratio test; asymptotic normality of Bayes estimates; minimum chi-square estimation; exercises; solutions