

KLAUS KRICKEBERG, *Probability Theory*. Addison-Wesley, Reading, 1965.
\$8.95. x + 230 pp.

Review by D. L. HANSON

University of Missouri

This text contains a clear and mathematically oriented presentation of certain parts of probability theory. The author states: "It should be suited for a first-year graduate course in probability and also for an advanced undergraduate course. The only prerequisites are calculus and the elementary theory of real finite-dimensional linear spaces." (The reviewer feels that a considerable degree of "mathematical maturity" should be added to the author's list of prerequisites.) If one agrees that the author's selection of topics and method of presentation are appropriate for a course in probability at some level, then he will probably also agree that this is a fine text for such a course.

The first two chapters of the text cover (in addition to a brief course in measure theory) the basic notions necessary to begin the study of probability theory: probability spaces, random events and random variables, moments, distribution functions in one and several dimensions, independence, etc. The third chapter deals with various types of convergence, the law of large numbers, and the central limit theorem, the latter being presented without the use of either moment generating functions or characteristic functions (which are not discussed by the author). Conditional probabilities and expectations, martingales, conditional probability distributions, and discrete time Markov processes are presented in the fourth chapter. The author concludes with a rather nice chapter on Brownian motion and the Poisson process.

The reviewer realizes that the exact content of a course in probability theory at a given level is a matter of personal preference and is thus open to debate. However, the following points about the contents of this book should be considered before it is chosen as a text:

(1) The book requires a degree of mathematical maturity absent in the undergraduate mathematics and statistics students at most universities in the United States.

(2) This text contains all the measure theory required for the course. However, a separate course in measure theory is considerably more comprehensive than the measure theory contained in this text; separate courses in measure theory and in probability are, at least as far as the reviewer is concerned, pedagogically preferable to the combined course.

(3) This book is not intended to be in any sense comprehensive. (The length of its textual portion, including the portion on measure theory, is only 214 pages. As a result, many topics are either excluded entirely or discussed only briefly. It could be used as a text in a one semester course intended for students having

a background in measure theory and having the mathematical maturity usually assumed at this level. Its content is insufficient for a one year course for such students.

In summary, though the reviewer finds this to be a very well written book, one should consider carefully its subject matter and method of presentation before choosing it as a text.