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Mathematics for Management

Harlan D. Mills

The Elements of Stochastic Processes with Applications to the Natural Sciences. By Norman T. J. Bailey. Wiley, New York, 1964. xi+249 pp. $7.95.

The purpose of this book is to introduce the reader to a wide variety of the theoretical principles underlying stochastic processes together with applications. The level of mathematical sophistication is about that of an introductory graduate course. The reader is assumed to have a background of basic probability and mathematical statistics, matrix algebra, complex variable theory, Laplace transforms and some familiarity with both ordinary and partial differential equations.

The beginning chapters, after a chapter on generating functions, are concerned with processes in discrete time including Markov chains and random walks. This is followed by processes in continuous time including such applications as birth-and-death processes, queues and epidemics. The remainder of the book deals with diffusion processes and some discussion on approximate methods for handling certain kinds of processes which otherwise entail relatively intractable mathematics.

The book is concise, clearly written, almost free of misprints, and should prove useful as a text.

H. J. ARNOLD, Bucknell University

Mathematics for Modern Management. By B. V. Dean, M. W. Sasieni and S. K. Gupta. Wiley, New York, 1963. 442 pp. $8.50.

This is a survey of mathematics for management and operations research which covers topics in differential and integral calculus, ordinary differential equations, probability theory, linear algebra, linear programming, and the mathematics of finance. While it is well written, the subject matter of the book poses a substantial problem for a student in mastering material all the way from elementary concepts in sets and functional notation up through differential equations and stochastic models. The student will need maturity, and considerable supplementary mathematical practice and experience to convert these topics into practical tools.

H. D. MILLS, International Business Machines Corporation

Mathematics for Management. By Mark E. Stern. Prentice-Hall, Englewood Cliffs, N. J., 1963. 454 pp. $8.75.

This book introduces and surveys various topics in mathematics related to management planning and operations research by means of the case study method. These topics include differential and integral calculus, differential equations, linear algebra, linear programming, and the theory of games. Each new mathematical topic is motivated by a specific case management problem. The case histories are interestingly developed, but the range of mathematical sophistication poses real problems for the reader. While written for the business administration student, the book might also be used to acquaint mathematics students with applied mathematics in management operations.

H. D. MILLS, International Business Machines Corporation