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Probability and Statistical Inference (8th Edition)

Robert V. Hogg, Elliot Tanis

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BOOK DESCRIPTION:
Written by two leading statisticians, this applied introduction to the mathematics of probability and statistics emphasizes the existence of variation in almost every process, and how the study of probability and statistics helps us understand this variation. Designed for students with a background in calculus, this book continues to reinforce basic mathematical concepts with numerous real-world examples and applications to illustrate the relevance of key concepts.

NEW TO THIS EDITION:

- **The included CD-ROM** contains all of the data sets in a variety of formats for use with most statistical software packages. This disc also includes several applications of Minitab® and Maple™.
- **Historical vignettes** at the end of each chapter outline the origin of the greatest accomplishments in the field of statistics, adding enrichment to the course.

Content updates

- **The first five chapters** have been reorganized to cover a standard probability course with more real examples and exercises. These chapters are important for students wishing to pass the first actuarial exam, and cover the necessary material needed for students taking this course at the junior level.
- **Chapters 6 and 7** on estimation and tests of statistical hypotheses tie together confidence intervals and tests, including one-sided ones. There are separate chapters on nonparametric methods, Bayesian methods, and Quality Improvement.
- **Chapters 4 and 5** include a strong discussion on conditional distributions and functions of random variables, including Jacobians of transformations and the moment-generating technique. Approximations of distributions like the binomial and the Poisson with the normal can be found using the central limit theorem.
- **Chapter 8 (Nonparametric Methods)** includes most of the standards tests such as those by Wilcoxon and also the use of order statistics in some distribution-free inferences.
- **Chapter 9 (Bayesian Methods)** explains the use of the "Dutch book" to prove certain probability theorems.
- **Chapter 11 (Quality Improvement)** stresses how important W. Edwards Deming's ideas are in understanding variation and how they apply to everyday life.

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