

learn problem-solving techniques. The solutions to the end-of-chapter problems, however, are available only to instructors.

Lastly, throughout the book, some examples of applications—such as engineering, finance, everyday life, etc.—are provided to aid in motivating the subject. These examples have been worded to be understandable to all students. As such, some technical issues have been left out.

Coverage

After a brief review of set theory and other required mathematical concepts, the text covers topics as follows:

- Chapters 1 and 2: basic concepts such as random experiments, probability axioms, conditional probability, law of total probability, Bayes' rule, and counting methods;
- Chapters 3 through 6: single and multiple random variables (discrete, continuous, and mixed), as well as moment-generating functions, characteristic functions, random vectors, and inequalities;
- Chapter 7: limit theorems and convergence;
- Chapters 8 and 9: Bayesian and classical statistics;
- Chapters 10: Introduction to random processes, processing of random signals;
- Chapter 11: Poisson processes, discrete-time Markov chains, continuous-time Markov chains, and Brownian motion;
- Chapter 12: basic methods of generating random variables and simulating probabilistic systems (using MATLAB);
- Chapter 13: basic methods of generating random variables and simulating probabilistic systems (using R);
- Chapter 14: recursive methods;

All chapters are available at www.probabilitycourse.com. Chapters 12 through 14 are available as PDFs and are downloadable from the textbook website. Chapters 12 and 13 cover the same material. The difference is that the codes in chapter 12 are provided in MATLAB while the codes in Chapter 13 are provided in R. The reason for this again is to give flexibility to instructors and students to choose whichever they prefer. Nevertheless, students who are unfamiliar with MATLAB and R should still be able to understand the algorithms.

Required Background