

# Preface

**Note.** Quoting from the Preface of the second edition of this book (pages iii and iv):

“This book contains enough material for a one-year course in probability and statistics. . . . The first five chapters are devoted to probability and can serve as the text for a one-semester course on that topic. . . . The last five chapters of the book are devoted to statistical inference.”

**Note.** We consider famous probability problems, such as the birthday problem (in Section 1.7), conditional probability and Bayes Theorem (in Chapter 2), Markov chains (in Section 3.10), random variables and probability distribution (in Chapter 3), expectation (in Chapter 4), several specific distributions (in Chapter 5), and the Central Limit Theorem (in Section 6.3).

**Note.** In our study of statistical inference, we consider maximum likelihood estimators (in Sections 7.5 and 7.6), sampling distributions and the  $t$  distribution (in Chapter 8), confidence intervals (in Section 8.5), Bayesian analysis (in Section 8.6), hypothesis testing (in Chapter 9), categorical data and Simpson's paradox (in Chapter 10; in particular Section 10.5), least squares methods (in Section 11.1), and linear regression (in Chapter 11).

**Note.** The second edition of the book states that it is designed so that it “is not tied to a computer in any way” (page iv). None of the exercises require a computer. This editions of the book is also about ideas and not computation.

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