List of Errata: April 2, 2012

Preface Material

- Acknowledgments: p. xxxi, line 3: Replace "Christoph Sims" with "Christopher Sims"

Chapter 4: Continuous random variables:

- In the header of the even-numbered pages, replace "random Variables" with "random variables"
- p. 79, Figure 4.4: In the plot, replace α by λ
- p. 98, (4.141): The integration should be from 0 to 1 (not ∞)
- p. 105, Problem 4.4*, part (b): In part (i), replace "(3.32)" by "(4.9)". In part (ii), replace "(4.9)" by "(3.32)".
- p. 111, (4.171): $n_1, n_2, \ldots, n_m$ should be $x_1, x_2, \ldots, x_m$. Also replace the first two lines below (4.171) as follows: "where $\boldsymbol{x} = (x_1, \ldots, x_m)$ (not x_n) is a nonnegative integer vector satisfying $\sum_{i=1}^m x_i = n$, and $\boldsymbol{p} = (p_1, \ldots, p_m)$ is a probability vector such that $\sum_{i=1}^m p_i = 1$. "

Chapter 5: Functions of random variables and their distributions

- p. 127, Algorithm 5.1, Step 4: Remove the sentence "The PDF corresponding to the accepted x will then be $f_X(x)$." and put this sentence at the end of the first paragraph of Section 5.4.2.2 on page 126.

Chapter 6: Fundamentals of statistical analysis

- p. 149, Figure 6.5: The curve for Pareto distribution should be for $\alpha = 2.0$, not 3.0 as stated in the figure caption and figure itself. See comments in the solution of Problem 6.14.

Chapter 7: Distributions derived from the normal distribution

- p. 170, Rice distribution (7.75): The coefficient 2π in the denominator should be removed.
- p. 171, (7.81): 2π should be taken out

Chapter 9: Generating functions and Laplace transform

- p. 233. Eq. (9.113): Sum should be from $m = 1$ (not $m = 0$) to infinity.
- p. 240, Problem 9.23: In the second equation, the first term should be $f(a + (k-1)h)$. It is missing h.

Chapter 10: Inequalities, bounds, and large deviation approximation

- p. 243, 1st paragraph, last sentence: Replace $\boldsymbol{x} - c^*\boldsymbol{y} = 0$ with $\boldsymbol{x} - c^*\boldsymbol{y} = \boldsymbol{0}$; i.e., the zero should be in boldface to denote the zero vector.
- p. 243, sentence before (10.4): Replace "Thus, we define the angle ϕ between the two vectors by" with "Thus, we define the angle ϕ between the two vectors of a real space by"

Chapter 12: Random processes

- p. 340, Problem 12.1: Should be indicated with a star
- p. 341, Problem 12.3: Should be indicated with a star
- p. 341, Problem 12.4: Should be indicated with a star

Chapter 13: Spectral representation of random processes and time series

- p. 354: The summation in (13.60) should be changed to $\sum_{n'=\max\{-k,0\}}^{\min\{N-k-1,N\}}$
- p. 373, (13.153): $x_{i'j}$ at the right end must be complex conjugate, i.e., $x^*_{i'j}$
- p. 373 (13.155): The column vectors entries should NOT be in bold:

$$\boldsymbol{u}_i = \begin{bmatrix} u_{i1} \\ u_{i2} \\ \vdots \\ u_{im} \end{bmatrix}$$

Chapter 16: Semi-Markov processes and continuous-time Markov models

- p. 475, (16.75): A minus sign should be inserted after the second equality, as in:

$$\kappa(e) = -\sum_{i\in\mathcal{S}} \pi_i Q_{ii} \rho(e)\tau(e) = -\mathrm{Tr}\{\boldsymbol{\Pi Q}\}\rho(e)\tau(e). \tag{16.75}$$

- p. 478, Problem 16.2: In the displayed equation, replace $\tau_j \le u_n$ with $\tau_n \le u_n$.
- p. 479, Problem 16.11: Replace $i = 1, \ldots, n$ with $i = 1, \ldots, r$.
- p. 480, Problem 16.11, sentence before (16.83): Replace "in time t" with "at time t".
- p. 480, (16.83): The equation should be as follows:

$$D_{ij} = \lambda_i e^{-\lambda_i t} e^{Q_{ii}t}\delta_{ij} + \int_0^t e^{-\lambda_i s} \sum_{k\neq i} Q_{ik} D_{kj}(t-s)\, ds, \quad i,j \in \mathcal{S}. \tag{16.83}$$

- p. 481, Problem 16.15: Replace "reversed Balance" with "reversed balance".
- p. 481, Problem 16.17: Replace "Theorem 16.7" with "Theorem 16.11' and replace "Theorem 16.6" with "Theorem 16.10".
- p. 481, Problem 16.21 (c): Replace "state space $\mathcal{C}$" with "state space $\mathcal{S}$".
- p. 482, Problem 16.23 (c): Replace "intensities $\lambda(e) = 1$" "intensities $\rho(e) = 1$".

Chapter 17: Random walk, Brownian motion, diffusion, and Itô processes

- p. 504, (17.126): Change the minus sign to the plus sign in front of $\alpha_0/2$ in the RHS.

Chapter 22: Filtering and prediction of random processes

- p. 652, 2nd line: Replace "Theorem (22.1)" with "Theorem 22.1"
- p. 652, 3rd line: Replace $E[Y - T(\boldsymbol{X})|^2]$ with $E[|Y - T(\boldsymbol{X})|^2]$
- p. 654, (22.47): Replace ϵ with ϵ_j
- p. 655, (22.57): This should be replaced by

$$\hat{\boldsymbol{\beta}} = \left[\sum_{i=1}^{n}(\boldsymbol{x}_i - \overline{\boldsymbol{x}})(\boldsymbol{x}_i - \overline{\boldsymbol{x}})^\top\right]^{-1}\sum_{j=1}^{n}(\boldsymbol{x}_j - \overline{\boldsymbol{x}})y_j. \tag{22.57}$$

  The β on the left should be in bold and x_j and $\overline{x}$ in the RHS should be in bold, and the denominator should be changed to the inverse of a matrix. The derivation of this equation is given in the solution of Problem 22.13.

- p.655, (22.61): The variance of $\hat{\beta}_0$ should be replaced by

$$\frac{\sigma_\epsilon^2}{n}\left(1 + n\overline{\boldsymbol{x}}^\top\left[\sum_{i=1}^{n}(\boldsymbol{x}_i - \overline{\boldsymbol{x}})(\boldsymbol{x}_i - \overline{\boldsymbol{x}})^\top\right]^{-1}\overline{\boldsymbol{x}}\right)$$

  The derivation is given in the solution of Problem 22.13.

- p. 656 (22.62): Replace ^{H} by $^\top$ since we are dealing with real numbers here.
- p. 691, Problem 22.10: Replace "variance" with "the variance."

Chapter 23: Queueing and loss models

- p. 699, (23.13): The first equation should be

$$-\lambda\pi_0 + \mu\pi_1 = 0, \tag{23.13}$$

- p. 710, sentence before (23.70): Replace "Problem 23.22 (a)" with "Problem 23.22"
- p. 710, (23.73): In the second term on the right, replace m^m with m^{m+1} as follows

$$f_W(x) = F_W(0)\delta(x) + \frac{m^{m+1}\mu}{m!}\pi_0(K-1)\frac{P(K-m-1; m\mu(x+\frac{1}{\nu}))}{P(K-1; mr^{-1})}. \tag{23.73}$$

- p. 710, sentence before (23.72): Replace "Problem 23.22 (b)" with "Problem 23.23"
- p. 733, Problem 23.12 (a): Replace "the number of customers m" with "there are m customers"