

Corrections to Modeling and Analysis of Stochastic Systems
As of March 1, 2006.

1. Acknowledgements, l. 10, replace Mr. Srinivasan by Mr. Rajagopal.
2. Acknowledgements, l. 10, replace Alexoupoulos by Alexopoulos.
3. p. 11, l. 1, replace sto'chastic by stochastic.
4. p. 19, l. 6b, replace "DTMC" bt "DTMCs".
5. p. 24, l. 21, replace $\{0, 1, 2, \dots, N\}$ by $\{0, 1, 2, \dots, N\}$.
6. p. 27, l. 12, replace q_o by q_0 .
7. p. 27, Figure 2.3: add an arc from node 0 to 0 with label q_0 .
8. p. 45, l. 6, replace σ_n^2 by σ_0^2 .
9. p. 50, l. 8b, replace $|\lambda_1| = 1$ by $\lambda_1 = 1$.
10. p. 56, l. 15, replace "above s" by "s or more".
11. p. 66, l. 3,6,9, and 12, insert () around the superscripts of a .
12. p. 69, l. 20 replace $P(\infty)$ by $P^*(\infty)$.
13. p. 71, l. 10 replace $P_{jk}^{(m)}$ by $p_{jk}^{(m)}$.
14. p. 79, l. 11, delete "modified".
15. p. 79, l. 12, replace f_i by $1 - f_i$.
16. p. 79, l. 18, replace " < 0 " by " $< \infty$ ".
17. p. 82, l. 4b and 5b, replace C by C .
18. p. 82, Eq. (3.34): $p_{ij}^*(n)$ should be $p_{jj}^*(n)$.
19. p. 83, equation (3.34). $p_{ij}^*(n)$ should be $p_{jj}^*(n)$.
20. p. 84, l. 10b, replace "recurrent" by "recurrence".
21. p. 87, l. 13, replace $(2n)$ by $(2n)!$.
22. p. 93, l. 1b, insert \leq before y_n .
23. p. 96, l. 5b, replace 15 by 18.
24. p. 101, l. 11, replace $\{...\}$ by $\{\dots\}$.
25. p. 104, l. 2b, replace "state" by "set".

26. p. 105, l. 4, replace “each-state” by “each state”.
27. p. 107, l. 12, replace “the same steps as before” by “induction”.
28. p. 107, Eq. 3.137, delete $\rightarrow \infty$.
29. p. 109, l. 6b, insert “.” before “)”.
30. p. 111, l. 1, replace “sort” by ‘sorts’.
31. p. 124, l. 8b, replace \hat{P} by $I - \hat{P}$.
32. p. 129, l. 8, replace “given” by “gives”.
33. p. 133, l. 7, insert “.” after T .
34. p. 143, l. 3, replace “We have seen in Section 4” by “From the results in Section 4 we see ”
35. p. 148, l. 5b, replace “ $i, i \in S$ ” by “ $i, j \in S$ ”.
36. p. 148, l. 12, italicize X and Y.
37. p. 158, Conceptual Exercise 8. In the hint, p_{ij}^n should be $p_{ij}^{(n)}$.
38. p. 166, l. 7 and l. 15, replace “success-run” by “success-runs”.
39. p. 167, l. 14, replace “0 .” by “0.”.
40. p. 172, Eq. 4.48: replace “ q .” by “ q ”.
41. p. 176, Replace Equation 4.76 by the following:

$$m_i(k) = k \sum_{j=1}^{\infty} p_{ij} m_j(k-1) + \sum_{j=1}^{\infty} p_{ij} m_j(k), \quad i \geq 1, k \geq 2,$$
42. p. 176 l. 4b, replace “ $m_i(0) = 1$ ” by “ $m_i(1) = m_i$ ”.
43. p. 177, adjust the last column of the P matrix at the top of the page so that the rows add up to 1.
44. p. 177, l. 7b, replace “using” by “using $\sum_{j=1}^{\infty} p_{ij} m_j(1) = \sum_{j=1}^{\infty} p_{ij} m_j = m_i - 1$ in”
45. p. 177, Equation 4.80, replace the column vector $[m_1 \ m_2 \ m_3 \ m_4]'$ by $[m_1 - 1 \ m_2 - 1 \ m_3 - 1 \ m_4 - 1]'$.
46. p. 178, Equation 4.81, replace the right hand side by the column vector $[17.9862 \ 21.3823 \ 15.7837 \ 25.7083]$.

47. p. 182, formula in Exercise 10: replace $q - p$ in the denominator of the second term by $(q - p)$.
48. p. 184, l. 18, replace $E(T|T < \infty)$ by $E(T|T < \infty, X_0 = i)$.
49. p. 184, l. 18, replace $E(T^{(k)}, T < \infty)$ by $E(T^{(k)}, T < \infty | X_0 = i)$.
50. p. 184, l. 19, replace $E(T^{(k)}|T < \infty)$ by $E(T^{(k)}|T < \infty, X_0 = i)$.
51. p. 187, l. 6, replace “Laplace Stieltjes” by “Laplace-Stieltjes”.
52. p. 189, l. 8, insert “squared” after “the”.
53. p. 189, l. 3b, italicize λ in the denominator.
54. p. 191, l. 12, replace) by].
55. p. 193, l. 6b, replace “application” by “applications”.
56. p. 196, l. 19, replace “Laplace Stieltjes” by “Laplace-Stieltjes”.
57. p. 201, l. 6, replace “Propostion” by “Proposition”.
58. p. 202, l. 11, replace “interevent” by ‘inter-event’.
59. p. 202, l. 14, replace N by X .
60. p. 202, l. 16, replace N by X .
61. p. 204, l. 5, replace k_n by $\leq k_n$.
62. p. 212, l. 13, replace “as” by “at”.
63. p. 214, l. 8b, replace “...” by “... + ”.
64. p. 218, l. 18, replace “interevent” by ‘inter-event’.
65. p. 219, l. 7, insert “to” after “have”.
66. p. 221, l. 6, replace $e^{-\lambda(1-\alpha)t}$ by $e^{\lambda(1-\alpha)t}$.
67. p. 221, l. 7, replace $e^{-\lambda t}$ by $e^{-\lambda \alpha t}$.
68. p. 222, l. 1b, insert “.” after “[”.
69. p. 224, l. 18, replace n by $n + k$.
70. p. 226, l. 12, replace “*am*” by “am”.
71. p. 226, l. 14, replace “var” by “Var”.
72. p. 229, l. 8b, replace “Laplace Stieltjes” by “Laplace-Stieltjes”.

73. p. 231, l. 6, replace “*CPP*” by “CPP”.
74. p. 234, Exercise 27(b): replace “minute” by “hour”.
75. p. 255, l. 8, replace “us conclude” by “us to conclude”.
76. p. 266, l. 2b, delete space after (.
77. p. 273, l. 10, delete space after).
78. p. 275, l. 6b, replace “table F2” by “table F3”.
79. p. 278, l. 5, replace “equaitons” by “equations”.
80. p. 281, l. 4, italicize z in z^k .
81. p. 281, Eq. 6.136, replace $p'_{ik}(t)$ by $kp'_{ik}(t)$.
82. p. 283, l. 14b, replace “from” by “for”.
83. p. 284, l. 4b, replace “non-negative” by “positive”.
84. p. 285, l. 11, replace “finite” by “a finite”.
85. p. 286, l. 8b, replace “imedded” by “embedded”.
86. p. 287, l. 6b, replace “analog” by “analogue”.
87. p.302, l. 2, italicize X .
88. p. 327, exercise 15: replace α in the numerator by $\alpha\lambda$.
89. p. 327, exercise 15: replace $+$ in the denominator by $-$.
90. p. 330, l. 12 and 17, replace “commision” by “commission”.
91. p. 331, l.4b, replace L_t by L_0 .
92. p. 332, l. 5, italicize T .
93. p. 337, l. 13b, replace “disciplie” by “discipline”.
94. p. 340, l. 18, replace “arriving” by “entering”.
95. p. 342, l. 10, insert “and every arriving customer enters the system,” just before “then”.
96. p. 342, l. 12, replace “ arriving” by “entering”.
97. p. 346, l. 7b, replace “Theorem 2.1” by “Theorem 7.1”.
98. p. 346, l. 4b, replace “ n th” by “ n th”.

99. p. 347, l. 5, replace “were” by “where”.
100. p. 349, l. 4, insert “of” after “that”.
101. p. 350, l. 12, delete “.” after “**Law**”.
102. p. 350, l. 15b, replace “essantially” by “essentially”.
103. p. 350, l. 4b, replace “disicpline” by “discipline”.
104. p. 351, l. 10, replace “of” by “if”.
105. p. 352, l. 2, delete ‘of’.
106. p. 365, l. 7b, replace “mode” by “node”.
107. p. 365, l. 1b, insert “is” after “matrix”.
108. p. 369, l. 15, insert “.” after p_{ij} .
109. p. 374, Equation 7.138. Replace “ $n \rightarrow \infty$ ” by “ $r \rightarrow \infty$ ”
110. p. 376, l. 12, replace “irreducibile” by “irreducible”.
111. p. 378, l. 8, replace Khinchine by Khintchine.
112. p. 378, l. 14, replace Pollaczec by Pollaczek.
113. p. 387, line 8b. Example 6.16 of Chapter 6 should be Example 5.17 of Chapter 5.
114. p. 388, l. 6 and l. 11, replace “ t .” by “ t .”.
115. p. 388, l. 14b, replace “.].” by “.].”
116. p. 388, l. 1b, replace “Chandi” by “Chandy”.
117. p. 390, Modeling Exercise 6. The expressions on the right handside of the equations for $p_{i,B}$ and $p_{i,I}$ need to be interchanged.
118. p. 395, l. 6, replace “...” by “...”.
119. p. 404, l. 12, insert “(See Computational Exercises 6 and 7.)” after “later.”.
120. p. 405, l. 13b, replace “nontrival” by “nontrivial”.
121. p. 406, l. 12, insert “(See Computational Exercises 6 and 7.)” after “later.”.
122. p. 407, l. 5, replace “Laplace Steiltjes” by “Laplace-Stieltjes”.

123. p. 411, l. 1, replace \leq by $=$.
124. p. 426, Equation 8.111, replace $e^{-\lambda\tau}$ by $e^{\lambda\tau}$.
125. p. 433, l. 8, replace “ocur” by “occur”.
126. p. 451, l. 14, replace λ by μ .
127. p. 455, l. 1b, replace “ $(N(t))$ ” by “ $N(t)$ ”.
128. p. 469, Computational Exercise 10, replace “pdf” by “cdf”.
129. p. 474, l. 2, replace 16 by 19.
130. p. 485, Eq. 9.32, replace X_{n+1} by S_{n+1} .
131. p. 486, l. 3b, Insert “Assume Eq. (9.33) holds.” before “Let” in the statement of Theorem 9.6.
132. p. 505, Eq. 150, replace \int_0 by \int_0^∞ .
133. p. 519, Statement of Theorem 9.26. Replace $Z(t)$ by $X(t)$.
134. p. 519, Statement of Theorem 9.27. Replace $Z(t)$ by $X(t)$.
135. p. 525, Eq. 9.231, replace $X(t) = i$ by $X(0) = i$.
136. p. 545, Modeling Exercise 12: insert after the third sentence: Let $Y(t)$ be the number of cells in the data-buffer at time t .
137. p. 554, l. 5b, replace “weaker” by “no stronger”.
138. p. 555, l. 8, replace “stronger” by “no weaker”.
139. p. 564, l. 11b, italicize X.
140. p. 568, l. 9, delete dx in the first integral.
141. p. 571, l. 6b, replace “...” by “...,”.
142. p. 571, last line, replace $\exp\{-x\dots\}$ by $\exp\{-\frac{1}{2}x\dots\}$.
143. p. 572, l. 4b, italicize G and NB.
144. p. 573, l. 10, delete “the” before R^n .
145. p. 578, l. 4, insert “of” after “number”.
146. p. 581, l. 11, replace “provides” by “provide”.
147. p. 583, l. 2b, rplace “Reimann” by “Riemann”.
148. p. 591, answer to exercise 21, replace $(X_n - 1 + Y_n)^+$ by $(X_n - 1)^+ + Y_n$.

149. p. 594, answer to computational exercise 27: replace $d(1-r)$ by $d(1-2p)$.
150. p. 594, answer to computational exercise 31: replace p^{m+1} by p^m and q^{m+1} by q^m .
151. p. 594, answer to computational exercise 33: replace k by K .
152. p. 595, answer to 1(c) should be 10.7661.
153. p. 595, answer to exercise 7 should be 18.
154. p. 595, l.4 in answer to Computational Exercise 13: Replace +1 by -1 as the last term on RHS. In l.6 and l.8 replace m_1 by $\frac{1}{2}m_1$, and $k = 2$ by $k = 1$ in the sum. In l. 8 replace $e - 2$ by $e - 1$ and .718 by 1.718.
155. p. 596, answer to Conceptual Exercise 11: replace ∞ by j .
156. p. 596, answer to exercise 9, chapter 5: replace $\lambda_1 c_1 > \lambda_2 c_2$ by $\lambda_1 C_1 > \lambda_2 C_2$
157. p. 598, l. 7b, replace $1 \leq i \leq 5$. by $2 \leq i \leq 5$, $q_{1,0} = \mu$.
158. p. 599, answer to exercise 5: replace $e^{j\mu t}$ by $e^{-j\mu t}$.
159. p. 599, answer to exercise 9: replace 216 by 648, 13824 by 41472, and $13 \leq k \leq 15$ by $13 \leq k \leq 15$.
160. p. 599, answer to Exercise 25(d) should be
- $$\frac{(\rho + 1)(2\rho^2 + 5\rho + 2)}{2 + 7\rho + 7\rho^2 + 5.5\rho^3 + 1.5\rho^4}$$
161. p. 601, l. 1, replace] by }.
162. p. 604, answer to exercise 29, replace G by F .
163. p. 605, answer to Modeling Exercise 1: replace $j + 1$ by j and $i + 1$ by i in the definition of m_{ij} .
164. p. 605, answer to Modeling Exercise 5: replace j by $(j + 1)$ inside the first integral.
165. p. 606, l. 2 and 3, replace $\frac{(\mu t)^{i+1}}{(i+1)!}$ by $\frac{(\mu t)^i}{i!}$.
166. p. 606, l.9, replace $\frac{\mu_j}{\mu}$ by $\frac{1}{\mu}$.
167. p. 609, l. 1, replace 1990 by 1980.