

## Errata, *Bayesian Analysis for the Social Sciences*

Simon Jackman

March 6, 2015

1. p xxv. Typo. Change “Investigating Causal Heterogeneity” to “Investigating Causal Heterogeneity”.  
Credit: Louis Raes (08/09/2012).
2. p xxvii. Typo. Change “to problem of how” to “to the problem of how”.  
Credit: Louis Raes (08/09/2012).
3. p xxviii. Typo. Change “more extreme, but hypothetical unobserved” to “more extreme, but hypothetical/unobserved”.  
Credit: Louis Raes (08/09/2012).
4. p xxviii. Typo. Change cite to “Western and Weiss 1995” to “Berk, Western and Weiss 1995”.  
Credit: Louis Raes (08/09/2012).
5. p xxviii. Typo. Change “the posterior probabilities that a particular statistical model...” to “the posterior probability...”
6. p xxxii. 1st full paragraph. Typo. Change “But this form of measurement error may have quiet different operational characteristics...” to “But this form of measurement error may have quite different operational characteristics...”  
Credit: Simon Munzert (08/17/2010).
7. p11. Equation 1.1. Change  $\phi([y_i - \mu_j]/\sigma_j)$  to  $\phi(y_i; \mu_j, \sigma_j^2)$ .  
Credit: Jeff Lewis and UCLA students (04/07/2012).
8. p12. In the arithmetic in the top half of the page, the normal densities should be written in  $\phi(y_i; \mu, \sigma^2)$  form, e.g., change  $\phi([.56 - .35]/.07)$  to  $\phi(.56; \mu = .35, \sigma^2 = .07^2)$  and so on. See also the next errata item.  
Credit: Jeff Lewis and UCLA students (04/07/2012).
9. p12. The arithmetic on p12 uses  $\sigma_1 = .07$ , when  $\sigma_1 = .08$  is given on p11 (which in turn are rounded estimates of the posterior means from Example 6.8). If we use the “to two decimal places” values of the parameters given on p11, and only perform further rounding “at the end” of the computations we get

$$P(T_i = 1 | y_i = .56) \approx .07$$

$$P(T_i = 2 | y_i = .56) \approx .93$$

$$P(T_i = 1 | y_i = .56) \approx 0$$

In addition, the text states (a)  $\phi([.56 - .66]/.10) = 2.46$  which should evaluate to 2.42; (b)  $\phi([.56 - .90]/.03) = 9.7 \times 10^{-27}$  which should evaluate to  $1.7 \times 10^{-27}$  (at least according to R version 2.12.0, 64 bit, Mac OS/X 10.6.4). Rounding error is the culprit here (the computations in the text were performed with unrounded versions of the parameter estimates).

See also the previous errata item.

Credit: Matthias Kretschmer (09/15/2010).

10. p14. Typo. Bottom paragraph. Change “In the top left of Figure 1.2” to “In the top right...”.  
Credit: Louis Raes (08/09/2012).
11. p15. Typo. 1st line of Definition 1.2. Change “a class of parametric of densities” to “a class of parametric densities”.  
Credit: Seth Hill (01/18/2013).
12. p16. Typo. 4 lines from bottom of page. Change “the prior has a two modes” to “the prior has two modes”.  
Credit: Seth Hill (01/18/2013).
13. p19. Typo. 5 lines from bottom of page. Change “cojugate” to “conjugate”.  
Credit: Louis Raes (08/09/2012).
14. p23. Typo. Definition 1.3. Change “availble” to “available”.  
Credit: Louis Raes (08/09/2012).
15. p26. Last line of Example 1.4. swap  $i$  and  $j$ , such that the last line reads “...higher Bayes estimate to applicant  $i$  than to applicant  $j$  (i.e.,  $\tilde{\theta}_i < \tilde{\theta}_j$ ).”  
Credit: Patrick Bayer (11/16/2010).
16. p27. Definition 1.10, change “Highest probability density interval” to “Highest probability density region”.  
Credit: Jeff Lewis (04/01/2010).
17. p27. Figure 1.5, caption. Change words after parenthetical comment to read “and a 50% HPD for a  $\chi_4^2$  density.”  
Credit: Sebastian E. Wenz (08/13/2012).
18. p36. Typo. Just before equation 1.5, change “encounted” to “encountered”.  
Credit: Cyrus Aghamolla (09/28/2010).
19. p36. Typo. In equation 1.6, change upper case  $P(\mathbf{y}|M_i)$  to lower case  $p(\mathbf{y}|M_i)$ .  
Credit: Jeff Lewis (04/01/2010).
20. p38. Typo. 1st word of section 1.9, change “Ealier” to “Earlier”.  
Credit: Louis Raes (08/09/2012).
21. p40. Typo. In the statement of Proposition 1.9, change lower case  $p$  in “ $p(y_1, \dots, y_n)$ ” to upper case “ $P(y_1, \dots, y_n)$ ”.  
Credit: Jeff Lewis (04/01/2010).

22. p40. Typo. In the definition of  $F(\theta)$ , change  $P$  to  $\Pr$ .  
Credit: Jeff Lewis (04/01/2010).
23. p40. Typo. Change “Thorem” to “Theorem”  
Credit: Oliver Woelfel (08/16/2010).
24. p44. Typo. “need not corresponds to anything” should read “need not correspond to anything”.
25. p45. Typo. Reference to “Linley” should read “Lindley”.
26. p45. Typo. No closing right parenthesis after “Propositions 1.9 and 1.10”.
27. p46. Typo. last displayed equation on page, change  $\frac{v}{2}$  to  $\frac{v_0}{2}$ .
28. p63. The Beta(1/2,1.2) density does integrate to one. Change “which does not integrate to one over the unit interval since the density is infinite at zero and one” to “which integrates to one over the unit interval even though the density is infinite at zero and one”.  
Credit: Steve Rigdon (01/13/2013).
29. p65. Typo. 1st line after the math in the top half of the page, change “Laura’s” to “Laura”.
30. p67. Typo. Change  $r_i$  to  $r_1$  in Table 2.1.  
Credit: Matthias Kretschmer (09/29/2010).
31. p79. Typo. At top of page change “ $\theta(\tilde{y}|\mathbf{y})$ ” to “ $p(\tilde{y}|\mathbf{y})$ ”.  
Credit: Jeff Lewis (04/22/2010).
32. p80. Typo. “Section 2.1” should read “Section 2.5”.  
Credit: Jeff Lewis (04/22/2010).
33. p86, proof of Proposition 2.6. The definition of  $s^2$  should be

$$s^2 = (n - 1)^{-1} \sum_{i=1}^n (y_i - \bar{y})^2.$$

Credit: Dave Armstrong (09/24/2012).

34. p93. Proposition 2.8. (Conditionally-conjugate priors for the normal mean and variance) includes a false statement. We have  $y_i \stackrel{\text{iid}}{\sim} N(\mu, \sigma^2)$ ,  $i = 1, \dots, n$ ,  $p(\mu, \sigma^2) = p(\mu)p(\sigma^2)$  where  $p(\mu) \equiv N$  and  $p(\sigma^2) \equiv \text{inverse-Gamma}$ . With this setup it is not the case that  $\sigma^2|\mathbf{y} \sim \text{inverse-Gamma}$ , contrary to what is claimed in the text.

The marginal posterior density for  $\sigma^2$ ,  $p(\sigma^2|\mathbf{y})$ , has no known form.

The “proof” of this proposition at C.10 in the Appendix also contains a corresponding error; see below.

Credit: Miaomiao Dong (3/5/2012).

35. p93. Typo. The sentence beginning “This two-step, simulation-based procedure...” should read “We resort to this two-step, simulation-based procedure...”.

36. p99. 1st sentence, section 2.5. Change “It is difficult to understate...” to “It is difficult to overstate...”

Credit: Stephen Jessee (2/15/2012).

37. p105. Typo. Expression for  $\mathbf{b}_1$  is missing the prior mean for  $\boldsymbol{\beta}$ ,  $\mathbf{b}_0$  and should read:

$$\mathbf{b}_1 = (\mathbf{B}_0^{-1} + \mathbf{X}'\mathbf{X})^{-1}(\mathbf{B}_0^{-1}\mathbf{b}_0 + \mathbf{X}'\mathbf{y})$$

Credit: Patrick Lam (03/23/2010).

38. p115. (1) Change “ $\mathbf{B}_1$ ” to “ $\mathbf{B}_0$ ”. (2) Change “ $\kappa\mathbf{B}_1$ ” to “ $1/\kappa\mathbf{B}_0$ ”.

Credit: Jose M. Pavia (05/13/2010; 05/17/2010).

39. p122. Typo. Change “hevay-handed” to “heavy-handed”.

Credit: Bon Sang Koo (04/22/2010).

40. p122. Change “ $\kappa\sigma_0^2\mathbf{B}_0$ ” to “ $\sigma_0^2/\kappa\mathbf{B}_0$ ”

Credit: Jose M. Pavia (05/13/2010).

41. p124. Typo. Line 11, change “decrases” to “decreases”.

Credit: Bon Sang Koo (04/29/2010).

42. p125. Typo. Problem 2.3, part 1. Change “statistial” to “statistical”.

Credit: Andrea Abel (08/10/2010).

43. p128. Typo. Problem 2.23. Change “You should be to” to “You should be able to”.

Credit: Andrea Abel (08/10/2010).

44. p134, line 3. Typo. “propenents” should be “proponents”.

Credit: Thomas Herzog (01/11/2011).

45. p138. Typo. Line 12, need a closing parenthesis in the inequality.

Error introduced by author at copy-editing!

Credit: Bon Sang Koo (04/29/2010).

46. p142. Typo. 7 lines above section 3.3. “has lies” should be “lies”.

Credit: Thomas Herzog (01/11/2011).

47. p143. Typo. Top line, expression for  $E_p(\theta)$  should read

$$E_p(\theta) = \int_{\Theta} p(\theta)\theta d\theta$$

Credit: Lucas Leemann (10/04/2011).

48. p145. After equation 3.2, “conditional on winning half of the seats” should read “conditional on winning half of the votes”.

Credit: Jose M. Pavia (05/15/2010).

49. p153. Typo. Second paragraph, at the end of line 5, two consecutive “is is”.  
Credit: Jose M. Pavia (05/16/2010).
50. p157. Algorithm 3.9, line 5 should be as follows:  $\omega^{(t)} \leftarrow q^{(t)}/\phi^{(t)}$   
Credit: Jose M. Pavia (05/16/2010).
51. p159, last line of 1st paragraph in section 3.4.3. Change “section” to “chapter”.  
Credit: Thomas Herzog (01/11/2011).
52. p161. Figure 3.11 caption; change  $\mathcal{I}(\theta > 2)$  to  $\mathcal{I}(\theta > 1)$ .  
Credit: Jose M. Pavia (05/17/2010).
53. p164. 2 lines under the remark, change “renders turns” to “turns”.  
Credit: Thomas Herzog (01/11/2011).
54. p164. 3rd line under the remark, change “strictly concave functions have a unique maximum” to “any strictly concave function has a unique maximum.”
55. p164. 6 lines from bottom of page, change “the the” should be “the”.  
Credit: Thomas Herzog (01/11/2011).
56. p175. Near the middle of the page. Change “and so  $\Pr(\theta^{(2)} = 0|\theta^{(1)} = 0)$ ” to “and so  $\Pr(\theta^{(2)} = 0|\theta^{(0)} = 0)$ ”.  
Credit: Steve Rigdon (01/13/2013).
57. p177. The last  $\mathbf{0}$  in equation 4.6 should be  $\mathbf{0}'$ .  
Credit: Steve Rigdon (01/13/2013).
58. p177. Typos, below Equation 4.7:
  - in “where  $\mathbf{x}$  is an eigenvector of  $\mathbf{x}$ ”, change 2nd  $\mathbf{x}$  to  $\mathbf{K}'$ .
  - in “...and  $\lambda$  is an eigenvalue of  $\mathbf{K}$ , change  $\mathbf{K}$  to  $\mathbf{K}'$ .”  
Credit: Bon Sang Koo (04/29/2010).
59. p178. Typo. Line 10, change “wrt to” to “wrt”.  
Credit: Bon Sang Koo (04/29/2010).
60. p179. Line prior to definition of Definition 4.6, change “and hence column  $j$ ” to “and hence row  $j$ ”.  
Credit: Jose M. Pavia (05/18/2010).
61. p182. Typo. “not also that since” should read “note also that since”.  
Credit: Dean Eckles (02/26/2010).
62. p183. Typo. After Definition 4.15, change “...the Markov chain is allowed to run that state infinitely many times...” to “the Markov chain is allowed to run that state is visited infinitely many times”.  
Credit: Andrea Abel (08/15/2010).

63. p184 Typo. “Harris recurrence removes this this” (drop 2nd “this”).  
Credit: Dean Eckles (02/26/2010).

64. p185. Definition 4.18. Equation 4.9 should read

$$p(\boldsymbol{\theta}^{(t)})K(\boldsymbol{\theta}^{(t)}, \boldsymbol{\theta}^{(t+1)}) = p(\boldsymbol{\theta}^{(t+1)})K(\boldsymbol{\theta}^{(t+1)}, \boldsymbol{\theta}^{(t)})$$

Credit: Stephen Jessee (02/25/2010).

65. p186. top two equations should read as follows:

$$\begin{aligned} \int_{\Theta} p(\boldsymbol{\theta}^{(t)})K(\boldsymbol{\theta}^{(t)}, \boldsymbol{\theta}^{(t+1)})d\boldsymbol{\theta}^{(t)} &= \int_{\Theta} p(\boldsymbol{\theta}^{(t+1)})K(\boldsymbol{\theta}^{(t+1)}, \boldsymbol{\theta}^{(t)})d\boldsymbol{\theta}^{(t)} \\ &= p(\boldsymbol{\theta}^{(t+1)}) \int_{\Theta} K(\boldsymbol{\theta}^{(t+1)}, \boldsymbol{\theta}^{(t)})d\boldsymbol{\theta}^{(t)} = p(\boldsymbol{\theta}^{(t+1)}) \end{aligned}$$

Credit: Stephen Jessee (02/25/2010).

66. p187. The equations in Example 4.10 should read:

$$\begin{aligned} \mathbf{p}_1 &= \mathbf{p}_0 \mathbf{K} = (0, 1, 0)' \\ \mathbf{p}_2 &= \mathbf{p}_0 \mathbf{K}^2 = (p, 0, 1 - p)' \\ \mathbf{p}_3 &= \mathbf{p}_0 \mathbf{K}^3 = (0, 1, 0)' \\ \mathbf{p}_4 &= \mathbf{p}_0 \mathbf{K}^4 = (p, 0, 1 - p)' \end{aligned}$$

Credit: Jeff Lewis (04/22/2010).

67. p187. Example 4.10, discussion following the equations, change  $K^m$  to  $K^n$ .

68. p187. Example 4.10, discussion following the equations:

- Change “with probability  $p/2p = 1/2$ ” to “with probabilities  $p$  and  $1 - p$ ”
- Change “ $\tilde{\mathbf{p}} = (1/4, 1/2, 1/4)'$  to  $\tilde{\mathbf{p}} = (p/2, 1/2, (1 - p)/2)'$ .”

Credit: Jeff Lewis (04/22/2010).

69. p187. Typos. 2nd sentence of section 4.3 should read “Periodicity is one way that a Markov chain cannot converge to a stationary density.”

Credit: Jeff Lewis (04/22/2010).

70. p192. Typo. Last line of Definition 4.26, change “intergrated” to “integrated”.

71. p192. Typo. In 1st line of the long equation (bottom of page), change  $\sum_{i \neq j}$  to  $\sum_{i < j}$ .

Credit: Steve Rigdon (01/13/2013).

72. p196. Typo. “...remains one of the most thorough treatment” should read “treatments”.

73. p197. Definition 4.1. “...from vertex  $j$  to vertex  $i$ ...” should read “...from vertex  $i$  to vertex  $j$ ...”

In addition, the expression for  $K_{ij}$  should read “ $K_{ij} = \Pr(\boldsymbol{\theta}^{(t)} = j | \boldsymbol{\theta}^{(t-1)} = i)$ ”.

These changes make the definition of the transition matrix ( $K_{ij}$ ) consistent with the usage earlier in Chapter 4 (e.g., Definition 4.2 at p174); i.e., rows index previous states, columns index current states.

74. p201. Line 1 of Algorithm 5.1 has the order of the arguments passed to the jumping distribution  $J_t$  swapped. The line should read

1: sample  $\theta^*$  from a “proposal” or “jumping” distribution  $J_t(\theta^{(t-1)}, \theta^*)$ .

Credit: Patrick Lam (03/23/2010).

75. p202. Line immediately below equation 5.2; change  $r_m$  to  $r_M$ .

Credit: Bon Sang Koo (04/30/2012).

76. p203. The algebra at the top of the page contains several typos. It should read:

$$\begin{aligned} K(\theta^{(t)}, \theta^{(t+1)}) &= J_t(\theta^{(t)}, \theta^{(t+1)}) r_S = J_t(\theta^{(t)}, \theta^{(t+1)}) \frac{\delta(\theta^{(t)}, \theta^{(t+1)})}{p(\theta^{(t)}|\mathbf{y})J_t(\theta^{(t)}, \theta^{(t+1)})} \\ &= \frac{\delta(\theta^{(t)}, \theta^{(t+1)})}{p(\theta^{(t)}|\mathbf{y})}. \end{aligned}$$

Credit: Author (2010) and Bon Sang Koo (04/30/2012).

77. p203. The result given in the middle of the page only holds for  $\theta^{(t)} \neq \theta^{(t+1)}$ . Thus, add “for any  $\theta^{(t)} \neq \theta^{(t+1)}$ ” after the words “...generated by Algorithm 5.1 is”.

Credit: Jeff Lewis (04/27/2010).

78. p203 Typo. “...which means that the resuting...” should read “...which means that the resulting...”.

Credit: Robert Gulotty (03/05/2010).

79. p206. Typo. Strange symbol at the end of the caption to Figure 5.2 should be the “section symbol” §.

80. p207. Typo. Last line of page, change “solving from a normal” to “sampling from a normal”.

Credit: Steve Rigdon (01/13/2013).

81. p208. Change “investigated the property...” to “investigated the properties...”

82. p213. Wrong reference. 2nd last line. Change “Plummer (2007)” to “Plummer (2009a)”.

Credit: Didier Ruedin (08/09/2012).

83. p214. Typo. 1st line of page, change “as if often the case” to “as is often the case”.

Credit: Steve Rigdon (01/13/2013).

84. p214. Clarification: In the two lines before Example 5.3, replace the  $d$  and  $d'$  subscript with  $j$  and  $j'$ .

Credit: Jose Pavia (05/24/2010).

85. p216. Caption of Figure 5.6. Change “first 10 iterations” to “first 50 iterations”.

Credit: Didier Ruedin (08/09/2012).

86. p217. Typo. 12th line, change “top left panel” to “top right” panel.

Credit: Steve Rigdon (01/13/2013).

87. p219. Typo. Change “... the general case in (Robert and Casella 2004, Theorem 10.6).” to “...the general case in Robert and Casella (2004, Theorem 10.6).”
88. p219. Typos. Integrations over  $\theta$  should be over  $\Theta$ ; similarly, integrations over  $\theta_1$  and  $\theta_2$  should be over  $\Theta_1$  and  $\Theta_2$ , respectively.
89. p221. Typo. 1st line after 1st equation, change “required to as to” to “required so as to”.  
Credit: Steve Rigdon (01/13/2013).
90. p221. Typo. change “this that in Algorithm 5.1” to “this means that...”.
91. p224. Typo. Line 10. Change “each parameters” to “each parameter”.  
Credit: Thomas Herzog (01/06/2011).
92. p224. Typo. 6th line, 2nd paragraph. Change “or the fact that prior...” to “or the fact that the prior...”  
Credit: Steve Rigdon (01/13/2013).
93. p227. Typo. Change
- $$p(\mu, \omega^2, \sigma^2) = p(\mu)p(\omega^2)p(\sigma^2)$$
- to
- $$p(\mu, \omega^2, \sigma^2) = p(\mu)p(\omega^2)p(\sigma^2)$$
- Credit: Andy Hall (04/26/2010).
94. p228. Typo. Add closing quotation marks after “all nodes in  $\mathcal{G}$  other than  $\sigma^2$ .”
95. p229. top of page, the displayed equation in item 3, change “ $f(\mathbf{Y}|\mu, \mathbf{a}, \sigma^2)$ ” to “ $f(\mathbf{y}_j|\mu, a_j, \sigma^2)$ ”.
96. p229. Typo. Middle of page, change “possible” to “possible”.  
Credit: Didier Ruedin (08/09/2012).
97. p230. Typo. 2nd paragraph after Example 5.7, change “it certainly possible ” to “it is certainly possible”.  
Credit: Thomas Herzog (01/06/2011).
98. p231. The density over the two (disjoint) unit disks should have  $2\pi$  in place of  $4\pi$ : i.e.,
- $$f(\theta_1, \theta_2) = \begin{cases} \frac{1}{2\pi} & \text{if } (\theta_1, \theta_2) \in \mathcal{D} \equiv \{\mathcal{D}^+ \cup \mathcal{D}^-\} \\ 0 & \text{otherwise.} \end{cases}$$
- Error introduced at copy-editing (by author!).  
Credit: Luis Camacho (03/03/2010).
99. p232. Typo. Last line of the first paragraph of Example 5.9. Change “Out” to “Our”.  
Credit: Cyrus Aghamolla (01/01/2011).
100. p233. Typo. Third sentence of first paragraph. Change “there are two mirror images posterior modes” to “there are two mirror image posterior modes.”  
Credit: Cyrus Aghamolla (01/01/2011).



101. p233. Typo. 2nd last line, 1st para. Change “...stronger than necessary than ensure” to “...stronger than necessary to ensure”.  
Credit: Seth Hill (01/26/2013).
102. p236. Typo. Line before Example 5.10. Change “can be thought of additional data” to “can be thought of as additional data”.  
Credit: Thomas Herzog (01/06/2010).
103. p236. Typo. Example 5.10. Change “in Example 2.1” to “in Example II.1”.  
Credit: Thomas Herzog (01/06/2010).
104. p238. Typo. Middle of page, change “ $g(\boldsymbol{\theta}|\mathbf{Y}_{\text{obs}}, \mathbf{Y}_{\text{miss}})$ ” to “ $g(\boldsymbol{\theta}|\mathbf{Y}^{(t)})$ ”.  
Credit: Steve Rigdon (01/13/2013).
105. p238. Typo. 2nd line from bottom of page. Insert “are” in “that there two sets”.  
Credit: Jose Pavia (05/24/2010).
106. p240. Typo. Change “...two distinct Bayesian problem” to “...two distinct Bayesian problems”.
107. p241 Typo. Line 18. Change “..simulation methods derive” to “...simulation methods to derive”.  
Credit: Thomas Herzog (02/03/2011).
108. p242. At step 1 of the Gibbs sampler, the definition of  $\mathbf{S}^{(t-1)}$  needs to be in terms of the mean-deviated  $\mathbf{Y}^{(t-1)}$ ; i.e., change  $\mathbf{S}^{(t-1)} = \mathbf{Y}^{(t-1)'}\mathbf{Y}^{(t-1)}$  to  $\mathbf{S}^{(t-1)} = (\mathbf{Y}^{(t-1)} - \mathbf{m})(\mathbf{Y}^{(t-1)} - \mathbf{m})'$  where  $\mathbf{m}$  is the vector of column means of  $\mathbf{Y}^{(t-1)}$ .  
Credit: Jose M. Pavia (05/28/2010).
109. p242. Typo. Line 18. Change “...of 250,000 iteration run” to “...of a 250,000 iteration run”.  
Credit: Thomas Herzog (02/03/2011).
110. p242. Caption to Figure 5.14. Change “inverse-Wishart(4, 2 · I<sub>2</sub>)” to “inverse-Wishart(2 · I<sub>2</sub>, 4)”.  
Credit: Jose Pavia (05/24/2010).
111. p244. Typo. Change “...at the base of trough...” to “...at the base of a trough...”  
Credit: Jose Pavia (05/24/2010).
112. p244. Typo. Strange symbol before “3.4.3” should be the “section symbol” §.
113. p245. Typo. Strange symbol before “8.3” should be the “section symbol” §.
114. p245. Change “we might implement step of the algorithm” to “we might implement step two of the algorithm”.  
Credit: Jose M. Pavia (05/28/2010).
115. p246. Typo. Strange symbol before “4.4.1” in the caption to Figure 5.16 should be the “section symbol” §.
116. p256. Line 9 of the R code chunk: change `y[1:20]` to `y[1:21]`; change `x[1:20]` to `x[1:21]`; change `n=20` to `n=21`; change `xstar=x[21]` to `xstar=x[22]`.

117. p256. Line 14 of the R code chunk; `MersenneTwister` should read `Mersenne-Twister` (insert hyphen).  
Credit: Stephen Jessee (03/08/2010).
118. p256. 3rd line from the bottom; change “observation number 21” to “observation number 22”.  
Last line of page, change  $x_{21}$  to  $x_{22}$ .
119. p257. 2nd line. Change “20” to “21”.
120. p258. line 13. Change “ $\sigma^2 = \tau^{-2}$ ” to “ $\sigma^2 = 1/\tau$ ”.  
Credit: Steve Rigdon (01/13/2013).
121. p258. Change  $y_{21}$  to  $y_{22}$  (twice). Change  $x_{21}$  to  $x_{22}$ .
122. p262. Typo. 4th line up above Example 6.1. Sentence should end with “entirely practical”. Next sentence starts “Is storing...”.  
Credit: Steve Rigdon (01/13/2013).
123. p263. Typo. Bottom paragraph. Change “We can then determining...” to “We can then determine...”  
Credit: Lindsey Cormack (03/09/2011).
124. p270. The definition of  $\mathbf{b}_1$  is missing the contribution of the prior mean  $\mathbf{b}_0$ . It should read
- $$\mathbf{b}_1 = (\mathbf{B}_0^{-1} + \mathbf{X}'\mathbf{X})^{-1}(\mathbf{B}_0^{-1}\mathbf{b}_0 + \mathbf{X}'\mathbf{X}\hat{\boldsymbol{\beta}})$$
- Credit: Jose M. Pavia (05/28/2010).
125. p271. Change “the denominator  $\sum x_i \neq 0$ ” to “the numerator  $\sum x_i \neq 0$ ”.  
Credit: Andrea Abel (08/16/2010).
126. p277. Typo. Change “on line 25” to “on line 24”.  
Credit: Lindsey Cormack (03/09/2011).
127. p277. The R code calling JAGS via `jags.model` uses the `nchain` argument. This argument has since been deprecated and should be called as `n.chains`.  
Credit: Lindsey Cormack (03/09/2011).
128. p279. Typo. Line 2 of the JAGS code should read `for(i in 1:n){`  
Credit: Will Bullock (03/05/2010).
129. p280, last line, change “contested elections” to “contested districts”  
Credit: Jose M. Pavia (05/28/2010).
130. p281. It would be clearer to use  $\pi$  to index permutations of the component labels; the symbol  $p$  has been used throughout the book to denote a probability density.  
Credit: Jose M. Pavia (05/28/2010).
131. p281. Strange symbol before “5.2.5” should be the “section symbol” §.  
Credit: Jose M. Pavia (05/28/2010).

132. p282. Change “At line 9, we use...” to “At line 4, we use...”  
Credit: Jose M. Pavia (05/28/2010).
133. p286. Typo. Equation at the bottom of the page, the upper limit of the summation should be  $J$ , not  $j$ .  
Credit: Steve Rigdon (01/13/2013).
134. p287. 2nd equation on the page, change  $\sigma_{12}$  to  $\sigma_{22}$ ; change  $\prod_{k=1}^6$  to  $\prod_{k=1}^7$ .  
Credit: Jose M. Pavia (05/31/2010).
135. p287. 11th line from the bottom. Change “a inverse-Wishart” to “an inverse-Wishart”.  
Credit: Steve Rigdon (01/13/2013).
136. p288. Typo. In the JAGS code, line 10, add a left curly bracket “{” after “for(j in 1:2)”  
Credit: Lindsey Cormack (03/09/2011).
137. p289. Typo. Change “A longer then usual...” to “A longer than usual”  
Credit: Jose M. Pavia (05/31/2010).
138. p290. line 17 in R code chunk. `beta[2, 1]` should be `beta[1, 2]`.  
Credit: Jose M. Pavia (05/31/2010).
139. p290. Typo. Paragraph after code chunk, change “of some the marginal posterior densities” to “of some of the marginal posterior densities”  
Credit: Cyrus Aghamolla (01/05/2010).
140. p296. Typo. Strange symbol in the 1st line of Exercise 6.11 should be the “section symbol” §.
141. p301. Typo. Mis-spelling of “Przeworski and Teune”  
Credit: Richard Traunmueller (08/16/2010).
142. p303. Typo. Equation 7.1a, change  $\sigma_j$  to  $\sigma$ .  
Credit: Thomas Herzog (02/03/2011).
143. p306. Typo. Start of last paragraph, “An assumption, an assumption” should read “An assumption”.  
Credit: Steve Rigdon (01/13/2013).
144. p307. Typo. Line 13. Change “...for the other the” to “...for the other”  
Credit: Thomas Herzog (02/03/2011).
145. p308. The equation at the top of the page for  $\bar{y}$  is correct only in the case of balanced data, with  $n_j$  constant over all  $j$ . For the general case the last term of the equation ought to read

$$\frac{\sum_{j=1}^J \sum_{i=1}^{n_j} y_{ij}}{\sum_{j=1}^J n_j}.$$

Credit: Jose M. Pavia (06/01/2010).

146. p311. Typos. References to  $\theta_0$  on this page (three of them) should be  $\mu_0$ .  
Credit: Stephen Jessee (04/20/2010).
147. p311. Typo. Line 13. Change “for the other the” to “for the other”.  
Credit: Thomas Herzog (02/03/2011).
148. p311. Typo. Line 17. Change “...one players” to “one player”  
Credit: Thomas Herzog (02/03/2011).
149. p311. Typo. Line 22. Change “...a inverse” to “an inverse”  
Credit: Thomas Herzog (02/03/2011).
150. p311. Typo. Change “We treat the these parameters...” to “We treat these parameters...”  
Credit: Simon Munzert (08/17/2010).
151. p312. Typo. Figure 7.1. Labels. Change “ $p(\mu_0)$ ” to “ $p(\mu_0)$ ”. Change “ $p(\theta)$ ” to “ $p(\theta_i)$ ”.  
Credit: Thomas Herzog (02/03/2011).
152. p312. Typo. After the equation for the posterior density, change “making the the model’s...” to “making the model’s...”  
Credit: Jose M. Pavia (06/05/2010).
153. p312. Typo. Five lines below Figure 7.1. Change “the the” to “the”.
154. p314. In line 12 of the JAGS code, the prior for tau should have hyperparameters divided by 2:  
i.e.,  
$$\text{tau} \sim \text{dgamma}(14/2, .07/2)$$
  
This error seems innocuous; the results reported in Figures 7.3 and 7.4 do not appear to change.  
Credit: Stephen Jessee (04/20/2010).
155. p317. Typo. Insert comma between  $\mu$  and  $\omega^2$  in equation 7.10b.
156. p318. Typo. 2nd line of text on the page, change “ $p(a, \dots, a_j | \mu_0, \omega^2)$ ” to “ $p(a_1, \dots, a_j | \mu_0, \omega^2)$ .”  
Credit: Jose M. Pavia (06/05/2010).
157. p318. Typo. Change “with respect the fixed effects” to “with respect to the fixed effects”.
158. p323. Typo. Middle of page, after the reference to Huber 1967, change the colon to a semi-colon.  
Credit: Steve Rigdon (01/13/2013).
159. p323. Typo. Delete the comma after “in R,”.  
Credit: Jose M. Pavia (06/05/2010).
160. p324. Typo. Missing a “twiddle”  $\sim$  at line 8 of the JAGS code.  
Credit: Andy Hall (04/27/2010).
161. p331. Line 14 of the JAGS code, change “for(i in 1:52){” to “for(i in 1:50){” The change is only aesthetic.  
Credit: Jose M. Pavia (06/05/2010).

162. p335. line 3 of the JAGS code is missing a “twiddle”  $\sim$  at line 4.  
Credit: Andrea Abel (11/03/2010).
163. p344. Drop “outcomes” in “...Nevada’s 1984 to 2000 elections outcomes...”
164. p345. Change “the cubic polynomial will consume 3 degrees of freedom” to “4 degrees of freedom”; the presence of an intercept term was presumed in the discussion, but it would be more precise to explicitly count the intercept parameter.  
Credit: Jose M. Pavia (06/05/2010).
165. p352. Typo. In paragraph titled “Predictions for the 2004 outcome”, change “valeus” to “values”.  
Credit: Jose M. Pavia (06/13/2010).
166. p356. Typo. Equation 7.29a,  $n_1$  should be  $n_j$ .  
Credit: Will Bullock (03/25/2010).
167. p361, Equations 7.30 and 7.31b, change  $\left(\frac{\theta_j}{1-\theta_j}\right)$  to  $\log\left(\frac{\theta_j}{1-\theta_j}\right)$ .
168. p368. 2nd half of page, the matrix  $\mathbf{W}$  should be 2-by-2 and so the expression “ $\mathbf{W} = \kappa\mathbf{I}_3$ ” should read “ $\mathbf{W} = \kappa\mathbf{I}_2$ ”. Further, consistent with a “vague” inverse-Wishart prior having degrees of freedom equal to the dimension of the inverse-Wishart’s scale matrix, then the expression “ $\mathbf{\Omega} \sim \text{inverse-Wishart}(\mathbf{W}, 3)$ ” should read “ $\mathbf{\Omega} \sim \text{inverse-Wishart}(\mathbf{W}, 2)$ ”.  
Credit: Daniel Myall (11/14/2011).
169. p369. See previous item. Line 24 of the JAGS code fragment should have `dwish(W,2)` instead of `dwish(W,3)`.  
Credit: Daniel Myall (11/14/2011).
170. p370. Caption to Table 7.8, change “AR(5)” to “AR(50)”.  
Credit: Jose M. Pavia (06/13/2010).
171. p380, two-line equation, lower half of the page, should have  $\varepsilon_i$  on the left hand side of the latter two inequalities. Also, the inequalities should all be weak, consistent with the definition of the model given in the previous sentences. This isn’t consequential to the point about the identifiability of  $\tau$ , but nonetheless is an error. The equation should read

$$\begin{aligned} \Pr(y_i = 1 | \mathbf{x}_i, \boldsymbol{\beta}) &= \Pr(y_i^* \geq \tau | \mathbf{x}_i, \boldsymbol{\beta}) = \Pr(\beta_0 + \beta_1 x_i + \varepsilon_i \geq \tau) \\ &= \Pr(\beta_0 + \tau + \beta_1 x_i + \varepsilon_i \geq \tau) \end{aligned}$$

172. p381. 3rd line from top of page, delete comma after parenthetical remark “as we will see”.  
Credit: Jose M. Pavia (06/13/2010).
173. p381, middle of page. The strong inequality in  $\mathcal{I}(y_i^* > 0)$  should be weak: i.e.,

$$y_i^* | \mathbf{x}_i, \tilde{\boldsymbol{\beta}}, y_i = 1 \sim N(\mathbf{x}_i \tilde{\boldsymbol{\beta}}, 1) \mathcal{I}(y_i^* \geq 0)$$

Credit: Stephen Jessee. (03/15/2015).

174. p381, bottom of page. Typo, step 1 of the algorithm. Change  
sample  $\boldsymbol{\beta}^{(t)} | \mathbf{y}^{(t-1)}, \boldsymbol{\beta} \sim N(\mathbf{b}, \mathbf{B})$   
to  
sample  $\boldsymbol{\beta}^{(t)} | \mathbf{y}^{*(t-1)}, \mathbf{X} \sim N(\mathbf{b}, \mathbf{B})$   
Credit: Stephen Jessee. (03/15/2015).
175. p398. Figure 8.7, change  $\tau_0$  to  $\tau_1$ ,  $\tau_1$  to  $\tau_2$  etc.  
Credit: Jose M. Pavia (06/13/2010).
176. p398. Caption to Figure 8.7, change “ $\Pr(\tau_1 < y_i^* \leq \tau_1 | \mathbf{x}_i, \boldsymbol{\beta})$ ” to “ $\Pr(\tau_1 < y_i^* \leq \tau_2 | \mathbf{x}_i, \boldsymbol{\beta})$ ”.  
Credit: Jose M. Pavia (06/13/2010).
177. p399. The definition of the likelihood for the ordinal probit model needs some special handling for the “edge” cases, e.g.,  $j = 0$  where  $\Phi_{i,j-1}$  isn’t well defined. The discussion in the text provides expressions for  $\Pr(y_i = j), j = 0, \dots, J$ , and we could just as simply define the likelihood in terms of these quantities; i.e., if  $p_{ij} = \Pr(y_i = j)$  then  $\mathcal{L} = \prod_{i=1}^n \prod_{j=0}^J p_{ij}^{z_{ij}}$ .  
Credit: Jose M. Pavia (06/13/2010).
178. p400. Equation 8.7. Change “ $\tau_1, \dots, \tau_{j-1}$ ” to “ $\tau_1, \dots, \tau_j$ ”.  
Credit: Jose M. Pavia (06/18/2010).
179. pp402-403. Although the discussion of the ordinal model in the text has presumed that the minimum of  $y_i$  is 0, the JAGS code must have  $y_i = 1$  as the smallest value of the dependent variable. The `dcat` construct is only defined for positive, integer valued responses. This could be made clearer.  
Credit: Jose M. Pavia (06/18/2010).
180. p403. Typo (introduced at type-setting). Need an opening curly brace after `for(i in 1:N)`, line 2 of the code fragment.  
Credit: Christian Rubba (08/18/2010).
181. p409. Typo. Change “...a situation well-suited for which Bayesian...” to “...a situation well-suited for Bayesian...”  
Credit: Jose M. Pavia (06/18/2010).
182. p409. Typo. Change “..the interview-specific effects” to “...the interviewer-specific effects”.
183. p419. Typo. Change “...it their pairwise differences...” to “...it is their pairwise differences...”  
Credit: Jose M. Pavia (06/18/2010).
184. p421. Line 13 of the R code chunk, change `betas` to `beta`.
185. p421. Line 13 of the R code chunk, change `matrix(0,6,3)` to `matrix(0,3,6)`.  
1st line below the code chunk, change “6-by-3 matrix” to “3-by-6 matrix”.  
Credit: Andrea Abel (01/21/2011).

186. p425. 1st line, change  $\epsilon_j$  to  $\nu_j$ .  
Credit: Jose M. Pavia (06/18/2010).
187. pp425-6. Typos. Cites to “Polson and Rossi (1998)” should read “McCulloch, Polson and Rossi (1998)”.  
Credit: Jose M. Pavia (06/18/2010).
188. p435. Typo. Change “...used to represent actors a social network” to “...used to represent actors in a social network”.  
Credit: Jose M. Pavia (06/30/2010).

189. p443. The expressions for  $\hat{\xi}_i$  and  $V(\hat{\xi}_i)$  in the middle of the page should read:

$$\begin{aligned}\hat{\xi}_i &= (\mathbf{Y}'_1 \mathbf{\Omega}^{-1} \mathbf{Y}_1)^{-1} \mathbf{w}'_i \mathbf{Y}_1 \\ V(\hat{\xi}_i) &= \frac{1}{p} (\mathbf{Y}'_1 \mathbf{\Omega}^{-1} \mathbf{Y}_1)^{-1}\end{aligned}$$

where  $\mathbf{\Omega} = \text{diag}(\omega_1^2, \dots, \omega_p^2)$ .

190. p444. Example 9.1. The model implemented in JAGS uses a conditionally conjugate specification, in which  $\gamma$  and  $\tau$  are independent *a priori* (lines 18 and 20 of the JAGS program at p445). But the development of the model in the text (§9.2.1-9.2.3, pp439-43) does not utilize a conditionally conjugate prior; e.g., see equation 9.5 on p439, where the prior for  $\boldsymbol{\gamma}$  is given as

$$\boldsymbol{\gamma}_j | \omega_j^2 \sim N(\mathbf{g}_{j0}, \omega_j^2 \mathbf{G}_{j0}), j = 1, \dots, p.$$

This differs from what is implemented in the JAGS code. The differences are unlikely to change the inferences over the latent variables or factor loadings (i.e., the difference between a vague conditionally conjugate prior over  $\boldsymbol{\gamma}_j$  and a vague conjugate prior is unlikely to be substantial).

191. p457. Typo. In the description of the Gibbs sampler (middle of page), at step “1” (a) insert comma between “ $\boldsymbol{\beta}_j a_j$ ” and (b) delete superscript \* from  $\boldsymbol{\xi}_j^*$  from  $g(y_{ij}^* | y_{ij}, \boldsymbol{\xi}_j^*, \boldsymbol{\beta}_j a_j)$ .  
Credit: Jose M. Pavia (06/30/2010).
192. p459. 4th line from bottom of page, change  $c = 0$  to  $c = \bar{\xi} \approx 0$ .  
Credit: Jose M. Pavia (06/30/2010).
193. p469. Figure 9.12. Some of the lines are missing the points at the end points. See [this](#) version of the graph.  
Credit: Jose M. Pavia (06/30/2010).
194. p470. Typo. 1st line of text on page under Figure 9.13. Delete comma after “the”.  
Credit: Jose M. Pavia (06/30/2010).
195. p471. After equation 9.20, change “ $\mathbf{W}_t$  is a vector” to “ $\mathbf{W}_t$  is a matrix...”.  
Credit: Andrea Abel (10/06/2010).
196. p472. 2nd line from bottom of page, change  $\mathbf{F}_t$  to  $\mathbf{G}_t$ .  
Credit: Jose M. Pavia (06/30/2010).

197. p473. Just below Equation 9.27, change “rolling house” to “polling house”.

198. p476. 1st two in-line equations, change

$$\frac{1}{\sum_{i \in \mathcal{P}_k} \sigma_{y_i}^2} \quad \text{to} \quad \sum_{i \in \mathcal{P}_k} \frac{1}{\sigma_{y_i}^2}$$

Credit: Julian King (04/15/2013).

199. p479. 2nd line from top of page, change  $C_{t-1}$  to  $C_{t-1} + \omega^2$ .

Credit: Julian King (05/22/2013).

200. p484. Typo. Caption of Figure 9.17. Change “ $x_i$ ” to “ $\zeta$ ”. Delete the sentence “The points...”

Credit: Jose M. Pavia (06/30/2010).

201. p488. Typo. Line 17 of the JAGS code is missing a tilde between `delta[1:NHOUSES]` and `dmnorm`.

Credit: Lindsay Stirton (03/09/2011).

202. p502. Typo. Last line, the definition of  $E(x)$  should be

$$E(x) = y(1 - \theta)/\theta$$

Credit: Herbert L. Smith (12/18/2012).

203. pp524-525. Proposition C.10. (Conditionally-conjugate priors for the normal mean and variance) includes a false statement. We have  $y_i \stackrel{\text{iid}}{\sim} N(\mu, \sigma^2)$ ,  $i = 1, \dots, n$ ,  $p(\mu, \sigma^2) = p(\mu)p(\sigma^2)$  where  $p(\mu) \equiv N$  and  $p(\sigma^2) \equiv$  inverse-Gamma. With this setup it is not the case that  $\sigma^2|y \sim$  inverse-Gamma contrary to what is claimed in the text.

In addition, the 1st sentence at the top of p525 is wrong and should be deleted.

The marginal posterior density for  $\sigma^2$ ,  $p(\sigma^2|y)$ , has no known form.

Credit: Miaomiao Dong (3/5/2012).