Corrections in A First Course in Linear Model Theory by Ravishanker and Dey

Note: All errors except 1, 4, 5, 24-31, 34, and 36 have been corrected in the second printing of this text.

1. p. 23. In item 2 of Result 1.2.11, replace $\mathcal{N}(\mathbf{A})$ by $\mathcal{N}(\mathbf{A}')$.
2. p. 59. Replace the last word in Definition 2.6.2, viz., "empty" by "a null space".
3. p. 135. Exercise 4.19 (b). $\mathbf{c}'\beta$ is estimable if $\mathbf{c}'(\mathbf{X}'\mathbf{V}^{-1}\mathbf{X})^{-}(\mathbf{X}'\mathbf{V}^{-1}\mathbf{X}) = \mathbf{c}'$.
4. p. 191. Exercise 5.6 (a). Define the polar coordinate transformations by $X_1 = \sigma_1 R\cos\Theta$, $X_2 = \sigma_2 R\sin\Theta$.
5. p. 192. Exercise 5.14 (c). $\rho_{1(2,3)} = (2\rho^2/(1+\rho))^{1/2}$.
6. p. 193. Exercise 5.19. Delete the factor 2 from the denominator in the definition of T. It should be
$$T = \frac{1}{(1-\rho^2)}\left[\left(\frac{X_1-\mu_1}{\sigma_1}\right)^2 - 2\rho\left(\frac{X_1-\mu_1}{\sigma_1}\right)\left(\frac{X_2-\mu_2}{\sigma_2}\right) + \left(\frac{X_2-\mu_2}{\sigma_2}\right)^2\right]$$
7. p. 193. Exercise 5.20 (a). Let $\mathbf{x} \sim N_k(\mu, \mathbf{I})$. Show that $U = \mathbf{x}'\mathbf{x}$ has a $\chi^2(k,\lambda)$ distribution, with $\lambda = \mu'\mu/2$.
8. p. 193. Exercise 5.21 (c). Assume that $\mathbf{x} \sim N_k(\mu, \mathbf{D})$ distribution.
9. p. 194. Exercise 5.32. The mean of the normal distribution should be $\mu\mathbf{1}$.
10. p. 217. In property 2 of Result 7.1.2, replace β^0 by β in the definition of the noncentrality parameter λ.
11. p. 218. In property 3 of Corollary 7.1.1, replace $(\widehat{\beta}-\beta)'\mathbf{X}'\mathbf{X}(\widehat{\beta}-\beta)/\sigma^2$ by $\widehat{\beta}'\mathbf{X}'\mathbf{X}\widehat{\beta}/\sigma^2$.
12. p. 248. In the last line of Example 7.4.1, replace $Q = (Y_1 - Y_2)/2$ by $Q = (Y_1 - Y_2)^2/2$.
13. p. 250. On line 9 in Example 7.4.3, replace $\mathcal{S}_{H_2}$ by $\mathcal{S}_{H_3}$.
14. p. 251. On the second line, delete the extra + sign before).
15. p. 277. Exercise 7.2 (c). Replace X_1^* by X^*.
16. p. 278. Exercise 7.14. Replace $Y_{k+1} = -c\lambda_2 + \varepsilon_{k+2}$ by $Y_{k+2} = -c\lambda_2 + \varepsilon_{k+2}$ in the last line of the model definition.
17. p. 278. Exercise 7.15. Replace "Derive the F-statistic for testing $H : \beta_1 = \beta_2$" by "Derive the F-statistic for testing $H : \beta_1 = \beta_3$".

18. p. 278. Exercise 7.18 (a). Replace "Show that the mean and variance of Y_0" by "Show that the mean of Y_0 and $Var(Y_0 - \widehat{Y}_0)$".

19. p. 279. Exercise 7.19. Replace X_1^* by X^*.

20. p. 301. On line 19, replace "section 8.2" by "section 8.1.2".

21. p. 331. In equation (8.5.27), we must have

$$AP_i = 1 - \frac{SSE_{(i)}}{SSE} \frac{|\mathbf{X}'_{(i)}\mathbf{X}_{(i)}|}{|\mathbf{X}'\mathbf{X}|}, \quad i = 1, \cdots, N.$$

22. p. 353. Exercise 8.4 (b). Replace $N-p-1$ by $N-p$ in all the expressions for $E(DW)$ and $Var(DW)$. Also, replace the right side of the expression $\mathbf{Q}$ by $tr(\mathbf{A}) - tr[\mathbf{X}'\mathbf{A}\mathbf{X}(\mathbf{X}'\mathbf{X})^{-1}]$.

23. p. 354. Exercise 8.11. Replace $W_i = i\frac{(N-1)}{N}(Np_{ii} - 1)\rho^2_{X,Y}$ by $W_i^* = \frac{(N-1)}{N}(Np_{ii} - 1)\rho^2_{X,Y}$.

24. p. 354. Exercise 8.13. Replace r_i^2 by $\widehat{\varepsilon}_i^2$ in the first term on the right side.

25. p. 364. In Result 9.2.2 (2), replace $\mathbf{N}'$ with $\mathbf{N}$.

26. p. 364. Replace n_{ij} by $n_{\cdot j}$ as the divisor of the first term on the RHS of (9.2.11) .

27. p. 364. In the last line, the second term on the RHS should also have a divisor of $n_{\cdot j}$.

28. p. 365. In the line below equation (9.2.13), replace q by b.

29. p. 365. In the fourth line of the proof of Result 9.2.4, it should read $\mathbf{1}'\mathbf{U}\mathbf{u}$.

30. p. 366. The upper limit for the summation over k should be n_{ij} and not n_{ijk} in (9.2.17).

31. p. 367. Replace $Y_{i\cdot\cdot}^2$ by $Y_{i\cdot\cdot}^2/n_{i\cdot}$ in Table 9.2.3 and in Example 9.2.2.

32. p. 370. In the proof of Result 9.2.6, replace "Property 1 is a special case of property 3 in Result 9.2.2" by "Property 1 is a special case of property 3 in Result 9.2.5".

33. p. 374. Replace $+SS(\beta|\tau)$ by $-SS(\beta|\tau)$ on the right side of SSE.

34. p. 382. Exercise 9.4 (a). Replace σ^a by σ^2 in $Var(\mathbf{y}_a) = \sigma^2\mathbf{D}_a$, $Var(\mathbf{y}_b) = \sigma^2\mathbf{D}_b$.

35. p. 383. Exercise 9.14. Replace X_j by X_{ij} in the model definition.

36. p. 386. In the definition of $Cov(Y_{ij}, Y_{i'j'})$, the last line should read $0 \quad \text{if } i \neq i'$.

37. p. 401. In the last but one line of Example 10.2.4, replace "MS_B/MS_{AB} has an $F_{b-1,(a-1)(b-1)}$ distribution." by "MS_B/MSE has an $F_{b-1,ab(n-1)}$ distribution."

38. p. 401. The exponent on the right side of Equation (10.2.12) must be $\exp\{-\frac{1}{2}(\mathbf{y}-\mathbf{X}\tau)'\mathbf{V}^{-1}(\mathbf{y}-\mathbf{X}\tau)\}$.

39. p. 405. Exercise 10.4. Replace "and the other quantities appear in Result 10.3.1" by " and the other quantities appear in Result 10.2.1".

40. p. 432. Exercise 11.11. Under Model 1, assume that Y_1 and Y_2 have independent Poisson distributions with means λ_1 and λ_2 respectively.

41. p. 444. Solution to Exercise 5.32. Delete the term $\frac{1}{2(1-\rho)}$ in the expression for $\mathbf{A}_1$.

42. p. 446. Solution to Exercise 8.3. Delete the extra = sign.