

ERRATA FOR THE FIRST PRINTING
as of March 28, 2009

1. Page 3, lines 3 and 4: The real number t is nonzero and $t \geq 0$ should be replaced by $t > 0$.
2. Page 41, Exercise 3: $M_{2 \times 3}(F)$ should be $M_{3 \times 2}(F)$.
3. Page 45, line 7: $(2, 3, -5)$ should be $(2, -3, 5)$.
4. Page 60, line 6 (line after the second display): $P_2(R)$ should be $P_3(R)$.
5. Page 81, line -1 : j th column should be $(j + 1)$ st column.
6. Page 108, line 1: “finite-dimensional” should be “ n -dimensional.” (V and W must have the same dimension.)
7. Page 110, lines 2, 3, 4: replace line 2 by “be defined by $\Psi(f) = 0$ if f is the zero function, and” change the period to a comma at the end of the display (line 3), and insert “otherwise.” at the beginning of line 4.
8. Page 127, Exercise 18: $\mathcal{L}(S, F)$ should be $\mathcal{F}(S, F)$.
9. Page 152, line 3: “matrix” should be replaced by “row operation” at the beginning of the line.
10. Page 168, Exercise 18: “of rank one” (at the end of the exercise) should be “of rank at most one.”
11. Page 170, line 10 (fourth display): upper case B should be lower case b .
12. Page 184, line 9: “zeros above” should be “zeros below” (in second line of item 5).
13. Page 210, line -5 : Insert “det” before the last matrix.
14. Page 217, bottom matrix: The $(1, 2)$ -entry of M should be 3 rather than 4.
15. Page 218, line 4: (4) , near the end of the line should be (3) .
16. Page 218, line 16 (middle display): The $(1, 2)$ -entry of P should be 3 rather than 4.
17. Page 225, Example 1: Change the first variable in the third equation to x_1 .
18. Page 232, Exercise 28(b): Replace this exercise by “Prove that $N(T)$ contains $\text{span}(\{y_1, y_1, \dots, y_n\})$.”
19. Page 255, Figure 5.2: Replace every occurrence of x and y by v .
20. Page 255 lines $-3, -2$: After “conclusion,” insert “let β be the standard ordered basis for \mathbb{R}^2 , ” and replace “we” with “and.”

21. Page 255 line -1: Replace $\det(\mathbf{T}_\theta - tI)$ by $\det([\mathbf{T}_\theta]_\beta - tI_2)$.
22. Page 272, line 16: “eigenvectors of \mathbf{R}^2 ” should be “eigenvectors of A .”
23. Page 285, line 15: Replace λ^n by λ^m .
24. Page 296, line 8 (first display): The inequality $<$ should be \leq .
25. Page 297, line -3: Replace “Corollary 2” by “Corollary 1.”
26. Page 300, line -17: Exercise 20 should be Exercise 21.
27. Page 300, line -5: Exercise 20 should be Exercise 21.
28. Page 312, line 12: Replace “see Exercise 22” by “This limit exists by Exercise 22 of Section 7.2.”
29. Page 312, Exercise 22: Change “Exercise 21 of Section 7.2” to “Exercise 22 of Section 7.2.”
30. Page 315, line 5: change “ $(a, b, 0, 0) \in \mathbf{R}^4$ ” to “ $(a, b, 0, 0) \in W$.”
31. Page 323, Exercise 14: Change “less than or equal to” to “less than.”
32. Page 335, line -1: Insert “ i ” after 2π in the denominator.
33. Page 343, line -7: Change “ W_1 ” to “ w_1 .”
34. Page 361, line -1: n should be replaced by k , in two locations.
35. Page 367, line 1: “vector space” should be “inner product space.”
36. Page 396, Exercise 29(c): Replace this exercise by “Compute Q and R as in (b) for the 3×3 matrix whose columns are the vectors $(1, 1, 0)$, $(2, 0, 1)$, and $(2, 2, 1)$.”
37. Page 407, line 13 (the end of the final display in the proof of Theorem 6.26): $\sigma_i^2 u_i$ should be $\sigma_i^2 v_i$.
38. Page 428. third line: Theorem 6.32 should be Theorem 6.33.
39. Page 448, Exercise 6, first line: \mathbf{R}^2 should be $\mathbf{R}^2 \times \mathbf{R}^2$.
40. Page 459, line -10 (last display): $[\mathbf{T}_V]_\beta$ should be $[\mathbf{T}_v]_\beta$
41. Page 460, line -3 (display): $[\mathbf{T}_V]_\beta$ should be $[\mathbf{T}_v]_\beta$
42. Page 487, lines 3 and 5: The symbol K'_{λ_i} has not been defined. It is intended to denote the generalized eigenspace of \mathbf{T}_W corresponding to λ_i . Since it is easily shown that this is actually equal to K_{λ_i} , the symbol K'_{λ_i} will be omitted in future printings where it will be observed that K_{λ_i} is the generalized eigenspace of \mathbf{T}_W corresponding to λ_i .

43. Page 491, line -15 (end of the proof of Corollary 1): Change “Theorem 7.4(b)” to “Theorem 7.5(b).”
44. Page 496, Exercise 7(e): Replace λ with λ_i in the equation at the end of the exercise (2 places).
45. Page 513, Exercise 18: Assume that $F = C$.
46. Page 514, Exercise 19: Assume that $F = C$.
47. Page 581, answer to Exercise 2(k) of Section 6.2: The third component of the last vector in the set should be $-18 + 16i$, and not $-18 + 6i$.
48. Page 582, answer to Exercise 2(e) of Section 6.4: the corresponding eigenvalues should be $1, 1, -1, 1$.
49. Page 583, the answer to Exercise 29(c) of Section 6.5:
 - a. Replace P by Q .
 - b. The $(1, 3)$ -entry of Q should be $-\frac{\sqrt{6}}{6}$.
50. Page 585, the answer to Exercise 1(b) of Section 6.10 should be F (false).