Linear Algebra Errata

All items corrected 12/12/21.

1. p. 337: $T(\mathbf{x})$, not $T\mathbf{x}$ (Diagonalization)

2. p. 337: $P^{-1}\mathbf{e}_2 = \mathbf{v}_2$ (Diagonalization)

3. p. 338: Fix Figure 19.1 and the discussion about it. (Diagonalization)

4. p. 340: Theorem 19.4, should be $D = [d_{ij}]$ (Diagonalization)

5. p. 355: Replace $|\alpha_k|$ with α_k in Step 3 to be consistent. We had been mixing scaling by α_k and $|\alpha_k|$. (Approximating Eigenvalues and Eigenvectors)

6. p. 357, 358: Fix signs in tables 20.2 and 20.3. (Approximating Eigenvalues and Eigenvectors)

7. p. 361 Exercise 7 (a): replace linearly independent with linearly dependent. (Approximating Eigenvalues and Eigenvectors)

8. p. 362 Exercise 8: Replace $|\alpha_0|$ with α_0. (Approximating Eigenvalues and Eigenvectors)

9. p. 371: Replace linear transformation in Activity 21.1 with matrix transformation. (Complex Eigenvalues)

10. p. 373: Fix the argument that uses $\lambda = a + bi$ instead of $\lambda = a - bi$ as is stated. This involves deleting the argument that begins with $A\mathbf{v} = \lambda\mathbf{v}$. This argument used λ as $a + bi$. (Complex Eigenvalues)

11. p. 374: The previous change requires rewriting the string of equalities just before the examples. This makes everything consistent with Activity 21.4. (Complex Eigenvalues)

12. p. 377. Use Re and Im instead of $\Re$ and $\Im$ in the project. (Complex Eigenvalues)

13. p. 431: Activity 24.4 (c): Replace R^n with $\mathbb{R}^n$ (Orthogonal and Orthonormal Bases in $\mathbb{R}^n$)

14. p. 435: Fix Exercise 6 – reflection matrices are also orthogonal. I created a new exercise 6 on reflection matrices, then rewrote the old exercise 6 as exercise 7. (Orthogonal and Orthonormal Bases in $\mathbb{R}^n$)

15. p. 444: Comment after Activity 25.1 about referring to the exercises. This is actually Theorem 23.10 on p. 417. (Projections and Gram-Schmidt in $\mathbb{R}^n$)

16. p. 446: Change reference to Preview Activity 36.1, should be Preview Activity 25.2. (Projections and Gram-Schmidt in $\mathbb{R}^n$)

17. p. 446: Gram-Schmidt process discussion, never defined W_3. (Projections and Gram-Schmidt in $\mathbb{R}^n$)

18. p. 462: Replace $f(x) = a_0 + a_x$ with $f(x) = a_0 + a_1 x$ (Least Squares)

19. p. 464: Change x_3 in last row of system to x_m

20. p. 465: Change $\mathbf{m}_i$ to $\mathbf{a}_i$ in Activity 26.1 (b) (Least Squares)

21. p. 465: Replace "invertible" columns with "linearly independent" columns in Activity 26.3. (Least Squares)

22. p. 466: Change $A\mathbf{x}$ to $\mathbf{x}$ in Activity 26.3 (b) ii. (Least Squares)

23. p. 477: Change "predicted" to "predict" in the sentences "He used the method to find a best-fit ellipse which allowed him to correctly predicted the orbit of the asteroid Ceres as it passed behind the sun in 1801." (Least Squares)

24. p. 502: Delete redundant "quadratic forms" in second sentence (Quadratic Forms and the Principal Axis Theorem)

25. p. 503: Remove missing reference to exercise. (Quadratic Forms and the Principal Axis Theorem)

26. p. 504: Replace $\mathbf{y}$ in $\langle u, v\rangle = \mathbf{u}^{\mathsf{T}} A\mathbf{y}$ with $\mathbf{v}$ in first line (Quadratic Forms and the Principal Axis Theorem)

27. p. 509: Remove extra period in exercise 6 (a) (Quadratic Forms and the Principal Axis Theorem)

28. p. 523: Replaced the word "the" with "a" in Activity 29.2 (c). (The Singular Value Decomposition)

29. p. 524: Removed the period after Exercise 9 reference in paragraph following (29.2). (The Singular Value Decomposition)

30. p. 538: Corrected the last column of matrix U in Preview Activity 30.1 Should have been $[-1\ 1\ -1\ 1]$. (Using the Singular Value Decomposition)

31. p. 543: Corrected all relative error terms (forgot the square roots initially). (Using the Singular Value Decomposition)

32. p. 544: Removed the extra | in two places on $||\mathbf{x}||$. (Using the Singular Value Decomposition)

33. p. 548: Realigned to remove the extra horizontal space in Activity 30.6 (a). (Using the Singular Value Decomposition)

34. p. 550: Corrected reference to Activity 26.3 (not Exercise ??).

35. p. 552: Added || to $\frac{1}{||\mathbf{w}_i}$ in Example Solution (a).

36. p. 558 Exercise 4 (b) iii.: Removed the extraneous phrase "has a non-trivial solution" in (b) iii.

37. p. 559 Exercise 8: Replaced pseudo-inverse with pseudoinverse.