ERRATA for FIRST EDITION (First Printing)

Please send any errata to: khardy@connect.carleton.ca
so that corrections can be made in subsequent printings.

Page 14. Line 2. Change $r_2$ to $r_1$ in second ERO so that $r_3 - 5r_2 \rightarrow r_3$ reads $r_3 - 5r_1 \rightarrow r_3$.

Page 19 Exercise 49. Add sentence, “... (b) $y = 0$. Find coordinates of points $A, B, C, D$."

Page 35 Exercises 43, 44. Insert “$A =$ ” before each matrix.

Page 48 Exercise 10. Delete “(a)” and “(b)” from the problem.

Exercise 14. In the figure, change output at $B$ from 200 to 500 in order to balance input and output.

Page 49. Exercise 15. Insert two words, “and solve the resulting ...” .

Exercise 16. In the last line, change $AE$ to $AB$ and $BD$ to $BC$.


Page 53. Edit line 4. Reverse order of words: “...how matrices (plural for matrix) were used ...” .

Page 71. Exercise 18. Correct three entries in last matrix:

\[
\begin{bmatrix}
-2.7 & * & -18.8 \\
* & * & * \\
27.0 & 31.0 & *
\end{bmatrix} = C
\]

Page 73. Exercise 46. Insert the word “main” before diagonal in two places.

Page 74. Exercise 76. Edit: Move “($A^2 = A$)” just after the word “matrix” .

Page 91. Exercise 23. Replace $Y = PXQ^{-1}$ by $Y = P^{-1}XQ$.


Page 104. Delete the edge between nodes 2 and 5 in graph $G_4$.


Page 118. After (2.73), replace “price vector” with “production vector.”

Page 122. Change em dash to minus sign and write $I_2 = C$.

Page 124. Example 7. Edit: “Refer to Figure 2.7.” and correct numerical data:

\[
A = \begin{bmatrix}
-0.8660 & -0.9397 & -0.7660 \\
-0.5000 & -0.3420 & 0.6428 \\
\end{bmatrix}, \quad B = \begin{bmatrix}
110.9923 & 13.1001 \\
13.1001 & 39.0077 \\
\end{bmatrix}, \quad \det(B) = 4157.9,
\]

\[
B^{-1} = \begin{bmatrix}
0.0094 & -0.0032 \\
-0.0032 & 0.0267 \\
\end{bmatrix}, \quad d = \begin{bmatrix}
0.0308 \\
0.5024 \\
\end{bmatrix}
\]

Exercise 11. Replace “paths” with “walks.”

Exercise 12. Replace “circuit” with “cycle.”


Exercise 19. Delete square.
Page 127. Delete words "the" and "are" and read: "... fraction of birds ... , killed by hunters."

Page 133. In Figure 3.2, read $x, y$ as vectors $x, y$ (bold faced).

Page 149. Exercise 18. Change second $u_2$ to $u_3$ and read "$(u_1, u_2, u_3)$".

Page 151. Exercise 70. Change "$v_1 -$" to "$v_1 -$" and the same for $v_2, v_3$. Insert "and $0$" reading: "... components in $v_1$ and $0$ and ...". Change $x_2 = [0, -3]$ to $y_1 = [0, -3], x_1$ to $x_1, y_1$ to $y_1$.

Page 155. Theorem 3.5. Proof. Delete transpose operator and read: "... in Section 2.2, $A$ is invertible ...".

Page 175. Exercise 17. Insert "that" to read "condition that will imply".
   Exercise 20. Delete "largest possible".
   Exercises 23–24. Add "s" to read "... basis vectors ...".

   Exercise 35. Insert the word "reduced" to read "reduced echelon".
   Exercises 53–56. Delete the word "binary".

Page 188. Edit line 5 from foot of page: "Observe that ran$T$ (= col$A$) is ...".

Page 190. Exercise 24. Replace "defined" by "represented".
   Exercises 43–44. Replace sentence "Express ... $B$." with "Use block form to compute $B$.".

Page 191. Exercise 17. Delete "s" in "rows".
   Exercise 18. Replace "independent" by "dependent" in two places.

Page 218. Exercise 33. Replace "defines" by "represents" in two places.
   Exercise 34. Replace "defined" by "represented".

Page 219. Exercise 37. Insert "from" after $\mathbb{R}^n$ on the last line.

Page 231. Exercise 15. Change 1 into 2 to read $u_2 = [3 \ -1 \ 0]^T$.

Page 234. Theorem 4.16 (a). Delete "classifying solutions".

Page 238. Middle of page: Read "... satisfies $-1 \leq r \leq 1$ and ... ."

Page 240. Example 5. Notation: Replace $\sim$ with $\approx$ (approximately) in three places.
   Exercises 5–6. Read "Figure 4.15."

Page 241. Exercise 14. In the numerator of quotient, read $\pi \pi$ (insert small space).
   Exercise 16. Read "... the vectors $s$ and $b$?"

Page 257. Exercise 46. The reference (5.15) is not required.

Page 263. Definition 5.3. Delete hyphen from "cross-product."

Page 267. Line 2. Replace "We have" with "Viewing $u, v, w$ as column vectors, we have".
   Exercise 5. Insert word, "... be square matrices ... ."

Page 268. Exercise 18. Edit the Hint to read: "Consider $V^T$, take $x_1$ times row 2 from row 1, $x_1$ times row 3 from row 2 and so on."

Page 269. Exercise 37. To keep terminology uniform, change "noninvertible" to "singular" in the Hint.

   Exercise 72. Change the word "hard" to "hand."

Page 271. Exercise 19. Add comma: "unimodular, then."

Page 277. Last line before EXAMPLE 1. Add word "the" to read "... on the main diagonal ... ."

Page 283. Exercise 3. Change (2,1)-entry in matrix from 3 to 0.

Page 284. Exercise 28. Change last equation to read $\det(\lambda I_n - A) = 0$.


Page 300. Edit entries in matrix: $D(1,1) = 0.86, D(2,2) = -0.04 + 0.70i, D(2, 2) = -0.04 - 0.70i$. Then $\lambda_1 = 0.86, \lambda_2 = -0.04 + 0.70i, \lambda_3 = -0.04 - 0.70i$ and $x_k = (0.86)^k$ ...
Page 303. In Figure 6.4 at node C change 0.86 to 0.80.

Page 313. Exercise 3. In line 2, read “The state diagram shown gives . . .”.

Page 315. Exercise 17. Better notation: Change $\mathbf{P}$ to $\mathbf{T}$ in four places and edit to read: “. . . distribution state vector and the . . .”.

Page 321. Line 3: Change “chain” to “product”.

Page 322. Exercise 10. Correct entries in the equation in the Hint and include $\gamma$ as follows,

$$\ldots + \beta \begin{pmatrix} 9 \\ 3 \\ 1 \\ 1 \end{pmatrix} t + \begin{pmatrix} 6 \\ 1 \\ 0 \end{pmatrix} + \ldots , \text{ where } \alpha, \beta, \gamma \text{ are scalars.}$$


Page 324. Exercise 2. Change italic $u, v$ to bold face $\mathbf{u}, \mathbf{v}$ in two places.

Page 325. Exercise 36. Use the definition $s(x, y) = \begin{pmatrix} x \\ y \\ s \end{pmatrix}$, when $s \neq 0$, and $0(x, y) = (0, 0)$.

Exercise 45. Delete word “are”.


Page 327. Exercises 13-14. Change $p(x)$ to $p(t)$.

Exercise 28. Edit: $\mathbf{p}_1 = 1$.

Page 328. Exercise 41. Edit: Consider the vector space $\mathbf{F}(\infty, \infty)$ and let . . .

Exercise 44. Replace “vectors” by “objects”.


Exercise 32. Edit “$\mathbf{T}(\mathbf{p}) = (1 + t)\mathbf{p}' - 3\mathbf{p}$, where . . .”.

Page 330. Exercise 35. Change $\mathbb{R}^n$ to $\mathbb{R}^{n \times n}$.

Exercise 39. Change $(2,2)$-entry in

$$\begin{pmatrix} 0 & 0 \\ 1 & 1 \end{pmatrix}$$

to read

$$\begin{pmatrix} 0 & 0 \\ 1 & 2 \end{pmatrix}.$$
Exercises 1.2 [7]. First row in $A^*$ reads $1 \ 1 \ 1 \ 0$.
Exercises 1.3 [19]. Edit “$\ldots = \frac{1}{2}(16, 10, 6, 4, 2, 6)$”.
Exercises 2.3 [9]. Edit: “and so, by Theorem 2.9, we . . .”.
Exercises 2.4 [33]. Better notation: Replace $Ax = x$ with $Pu = u$ and change $A^{110}u$ to $P^{110}u_0$.
Exercises 3.3 [39]. Change F to T.
Exercises 3.3 [43]. Change (1, 3)-entry to $-1$.
Exercises 3.3 [45]. Delete letter “T”.
Exercises 3.4 [1]. Edit: “(b) ker $T = \{0\}$, ran $T = \mathbb{R}^2$,”.
Exercises 3.4 [19]. Change (2, 1)-entry to $-1$.
Exercises 3.4 [21]. Replace matrix with $\begin{bmatrix} -1 & 0 \\ 0 & 0 \end{bmatrix}$.
Exercises 3.4 [37]. Edit: “These are represented by matrices $A$ with $A^2 = I$.”.
Exercises 4.1 [41]. Replace first instance of $\text{comp}_u v$ by $\text{comp}_u v$ and change entry in $\text{comp}_u v$ from $-1$ by 1.
Exercises 4.3 [15]. Replace $-\sqrt{3}$ by $-\frac{3}{2}$ and replace $\frac{3\pi}{2}$ by $\frac{\pi}{2}$.
Exercises 4.3 [23]. Replace “The” by “An”.
Exercises 4.4 [7]. Edit: “$r(x_0) = [2, -5, 1]^T$,” and add at end “$r(x) = \left[\frac{3}{2}, 0, \frac{3}{2}\right]^T$.”
Exercises 5.2 [9]. Edit: $\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$.
Exercises 5.2 [11]. Edit: $\begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & -1 \\ 0 & 0 & 1 \end{bmatrix}$.
Exercises 6.1 [37]. Delete “s” in “polynomials.”
Exercises 6.4 [7]. Change fourth component in $u_n$ from 0.625 to 0.125.
Exercises 8.1 [53]. Change answer to $\pm(1 + i\sqrt{3})$.
Exercises 8.3 [11]. In polar form, the answer is $\frac{\sqrt{3}}{2} \cos \frac{\pi}{6} \cos 0$.
Exercises 8.4 [5]. Change $\text{cis}(-\frac{\pi}{6})$ to $\text{cis}(\frac{\pi}{6})$.
Exercises 8.4 [9]. Change $\pm \sqrt{3} - i$ to $\pm \sqrt{3} + i$.
Exercises 8.4 [11]. Answer is $\sqrt{2} \text{cis} \left( \frac{\pi}{12} + \frac{2k\pi}{3} \right)$, $k = 0, 1, 2$.
Exercises 8.5 [15]. Read $A^{-1} = \left[ \begin{array}{ccc} i & 1 - i \\ 1 + i & -i \end{array} \right]$.
Exercises 8.5 [29]. Transpose first matrix.
Exercises 8.5 [31]. Transpose first matrix.
Exercises 8.5 [33]. Transpose first matrix and insert fraction: “$A^{-1} = \frac{1}{36} \ldots$”.
Exercises 9.1 [11]. Change $(0, 0)$ to $(1, 0)$ and, in the figure, change color of triangle with nodes $(0, 0)$, $(1, 0)$, $(0, 1)$ to white.
Exercises 9.4 [3]. Edit: “$f \approx 9.9231.$”.

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