The following is a list of known errors in the text. If you come across any others, please send them to me at `tmk5@calvin.edu`.

- p. 7: in Definition 1.4 (RREF) the listed items should read,
  (a) all nonzero rows are above any zero row,
  (b) the first nonzero entry in a row (the leading entry) is a one,
  (c) every other entry in a column with a leading one is a zero, and
  (d) the leading entry in a given row must be to the right of the leading entry in the row above.
- p. 12: Exercise 1.1.6 should read, "If the coefficient matrix satisfies $\boldsymbol{A} \in \mathcal{M}_{9\times 6}(\mathbb{R})$, and if the RREF of $\boldsymbol{A}$ has three zero rows, is the solution to the consistent linear system $\boldsymbol{Ax} = \boldsymbol{b}$ unique? Why or why not?"
- p. 19: the phrase "even though matrix multiplication is not necessarily commutative, it is associative" should read "even though matrix multiplication is not necessarily commutative, it is distributive across addition"
- p. 27: 4 lines above Example 1.29 strike the line "Note that $\boldsymbol{x}_\text{p}$ is the last column of the RREF of the augmented matrix $(\boldsymbol{A}|\boldsymbol{b})$."
- p. 28: strike the last sentence in Example 1.29, "Note that the chosen particular solution is the last column of the RREF of $(\boldsymbol{A}|\boldsymbol{b})$."
- p. 33: the right-hand side of the $\rightsquigarrow$ in equation (1.6.1) should read $2\boldsymbol{a}_1 + 3\boldsymbol{a}_2 - \boldsymbol{a}_3 = \boldsymbol{0}$
- p. 34: the last equation in the second-to-last displayed line should read,
$$\boldsymbol{x} = t \begin{pmatrix} -2 \\ 1 \\ 1 \end{pmatrix}, \quad t \in \mathbb{R}.$$
- p. 35: the last equation in the third displayed line should read,
$$\boldsymbol{x} = t \begin{pmatrix} -2 \\ 1 \\ 1 \\ 0 \end{pmatrix}, \quad t \in \mathbb{R}.$$
- p. 39: in Exercise 1.6.7 "YES" should read "NO"
- p. 46: in Exercise 1.7.8(a) strike the word "and"
- p. 55: in Theorem 1.68 add to the enumerated list, "(e) $\boldsymbol{b} \in \text{Col}(\boldsymbol{A})$"
- p. 57: in Theorem 1.73 it should be assumed that $m \geq n$
- p. 58: 5 lines above Theorem 1.75 strike the sentence, "Going back to the definition of the determinant, we see that (a) is equivalent to $\det(\boldsymbol{A}) \neq 0$."
- p. 58: in Theorem 1.75 strike condition (h), $\det(\boldsymbol{A}) \neq 0$
- p. 58: in Theorem 1.76 strike condition (a), $\det(\boldsymbol{A}) = 0$
- p. 68: in Example 1.86 the displayed line should read,
$$|z| = 4, \quad \tan\theta = \sqrt{3} \;\rightsquigarrow\; \theta = \frac{\pi}{3},$$

- p. 69: the last displayed equation in Example 1.88 should read

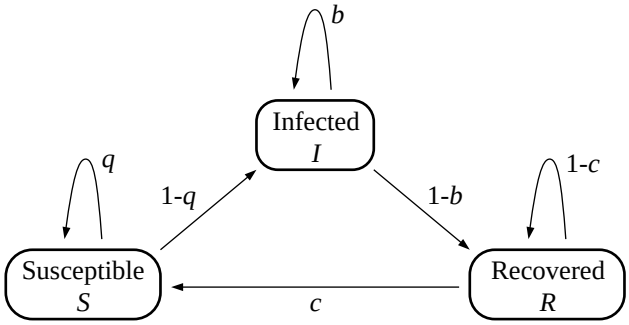
$$\boldsymbol{x} = \begin{pmatrix} 9 + \mathrm{i}9 \\ -3 \end{pmatrix} = \begin{pmatrix} 9 \\ -3 \end{pmatrix} + \mathrm{i} \begin{pmatrix} 9 \\ 0 \end{pmatrix}.$$

- p. 74: The first full sentence on the top of the page should read, "In this example, $\lambda = 1$ is such that $\mathrm{m_a}(1) = 2$ (a double eigenvalue), and $\lambda = 3$ is such that $\mathrm{m_a}(3) = 4$ (a quartic eigenvalue)."

- p. 86: the matrix $\boldsymbol{C}_3$ should read

$$\boldsymbol{C}_3 = \begin{pmatrix} 1 & 0 & 0 \\ -a_2 & 1 & 0 \\ -a_1 + a_2^2 & -a_2 & 1 \end{pmatrix}$$

- p. 90: accompanying equation (1.13.7) there should be the below figure:



- p. 97: Group Project **1.2**(c) should read "S is more likely to click on the link from B to A (rather than on a link to some other page C from B) if there are not many links from B to other pages."

- p. 104: in Exercise 2.1.3 the phrase "the temperature of the body" should read "the rate of change of the temperature of the body"

- p. 106: in the caption for Figure 2.3 the references to "blue" and "green" should be ignored

- p. 112: in the second displayed line the expression $c_1x_1' + x_2x_2'$ should read $c_1x_1' + c_2x_2'$

- p. 112: at the end of the first paragraph strike the sentence "A solution to a homogeneous problem is unique only up to scalar multiplication."

- p. 113: in the first sentence of the last paragraph "(3.3.1)" should read "(2.3.1)"

- p. 122: the second displayed equation should read

$$(4a_0 - 8)\,\mathrm{e}^{3t} = 0.$$

  the third displayed equation should read

$$4a_0 - 8 = 0 \quad \rightsquigarrow \quad a_0 = 2.$$

  the fourth displayed equation should read

$$x_\mathrm{p}(t) = 2\mathrm{e}^{3t},$$

  and the fifth displayed equation should read

$$x(t) = c_1\mathrm{e}^{-t} + 2\mathrm{e}^{3t}.$$

- p. 124: the solution at the end of Example 2.19 should read

$$x(t) = c_1 \mathrm{e}^{-7t} + 3t\mathrm{e}^{-7t}$$

- p. 125: the phrase "we see one guess associated with $t\sin(2t)$ and another guess associated with the polynomial t^2. For the guess associated with (d), we needed to" should read "we see one guess associated with $t^3\mathrm{e}^{5t}$ and another guess associated with the polynomial t^2. Moreover, we needed to"

- p. 137: in the second displayed equation $g(G, I)$ should read $f(G, I)$

- p. 140: in the caption associated with Figure 3.4 the final phrase in the second sentence should read "denoted by letters."

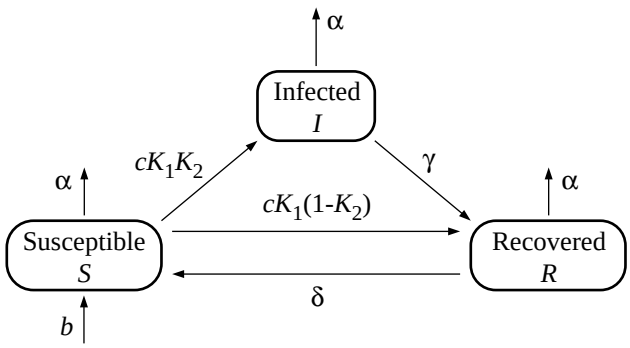
- p. 177: in the first and second displayed lines the $(2, 1)$ entry of $\mathbf{\Phi}(t)^{-1}$ should read $2\mathrm{e}^{-5t}$

- p. 184: in the first displayed line the $(1, 2)$ and $(2, 2)$ entry of $\mathbf{\Phi}(t)$ should each be multiplied by -1

- p. 189: in the caption for Fig. 3.15 the phrase "and leaves tissue loss" should read ", and is also removed via tissue loss"

- p. 189: in the first system of displayed equations the term $-r_{20}x_2$ in the equation for x_2' should read $-(r_{20} + r_{21})x_2$

- p. 193: accompanying equation (3.7.3) there should be the below figure:



- p. 194: The sentence surrounding equation (3.7.4) should read, "The function $b(a)$ describes the rate at which the total population changes,

$$N' = b(a) \quad \rightsquigarrow \quad S' + I' + R' = b(a), \tag{3.7.4}$$

(see Exercise 3.7.3)."

- p. 202: the characteristic polynomial in equation (4.1.2) should read

$$p_{\boldsymbol{A}}(\lambda) = (-1)^n \left(\lambda^n + a_{n-1}\lambda^{n-1} + \cdots + a_1\lambda + a_0\right)$$

- p. 207: in Theorem 4.5 the last displayed equation should read

$$y(t) = \left(c_1 + c_2 t + \cdots + c_k t^{k-1}\right) \mathrm{e}^{at}\cos(bt) + \left(c_{k+1} + c_{k+2}t + \cdots + c_{2k}t^{k-1}\right) \mathrm{e}^{at}\sin(bt),$$

- p. 208: in Exercise 4.1.2(b) the characteristic polynomial should read

$$p_{\boldsymbol{A}}(\lambda) = -\left(\lambda^3 + a_2\lambda^2 + a_1\lambda + a_0\right)$$

- p. 218: The second paragraph should read, "The homogeneous problem is

$$y'' + 2by' + \omega_0^2 y = 0.$$

The associated characteristic polynomial is

$$p(\lambda) = \lambda^2 + 2b\lambda + \omega_0^2,$$

which has the zeros,

$$\lambda = \lambda_\pm = -b \pm \sqrt{b^2 - \omega_0^2}.$$

The solution behavior depends on the relationship between b and ω_0. A summary cartoon is provided in Figure 4.1"

- p. 228: in the displayed line above equation (4.3.8) ω_n^2 should read ω_{n}^2.
- p. 234: in (d) the first sentence should read, "Assume there is no damping, i.e., $b = 0$."
- p. 235: the first displayed line in part (d) should read,

$$a, b, d < 0, \quad c > 0.$$

- p. 238: in Example 5.2 the definition for $f(t)$ should have $5 \leq t$ instead of $5 < t$
- p. 240: in Definition 5.5 the phrase "M, $b > 0$" should read "C, $b > 0$"
- p. 270: the first displayed line in part (d) should read,

$$a, b, d < 0, \quad c > 0.$$