Calculus for the Life Sciences
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Page 3, Footnote, Debora (not Deborah) is an Associate Professor.

Page 65, \((y^2 + 3x + 9/4)\) should be \((y^2 + 3y + 9/4)\).

Page 86, Second paragraph, “16 minutes intervals” should be “16-minute intervals.”

Page 109, The numerator of the first fraction should be \((L(b) - L(d))\) mw/cm².

Page 123, \([2t]'[7]'\) should be \([2t]' + [7]'\) and \(2[t]'[7]'\) should be \(2[t]' + [7]'\), twice.

Page 124, Example 3.5.4 “t seconds after it is released” should be “t seconds after it is hit”

Page 165, Figure 4.22 The portion of the graph with \(x \leq 25\) should be dashed.

Pages 191 and 192, Units on equations for Primitive Concepts 1 and 2: The \(l\) for liters looks identical to the number 1. Change the \(l\)’s to \(liters\) in 7 places.

Page 226, Add: In Leibnitz notation, \(\frac{dG(u(t))}{dt} = \frac{dG(u)}{du} \times \frac{du(t)}{dt}\).

Page 240, \(\pi < z < \pi\) should be \(-\pi < z < \pi\).

Page 242, Exercise 7.1.4 part (d) “Is the previous step useful?” should be “Is Step (b) useful?”

P 256, earth should be Earth.

P 279, Last line, “it ” should be “if”.

P 286, Sixth ’dot’ from the top, “Find the critical points.” should be “Find the critical points of \(A^2\).” Also, “The critical points are” should be “The critical points of \(A^2\) are”.

P 307, Third line from the bottom. “A good approximation” should be “A good initial approximation”.

P 313, Third sentence. “(8.29) is called” should be “Equation (8.29) is called”.

P 344, Line 13 “TI- 86, the” should be “TI-86 calculator, the”.

P 370, Figure 10.5 In the graph it would be good to replace “\(t = x\)” with “\(f(x)\)”.

P 391 and 396, In the legends of Figures 11.4 and 11.13, Insert: “Assume the original of each photograph is 30 cm wide.”

P 409, Exercise 11.5.9 \(1 \leq x \leq m\) should be \(0 \leq x \leq m\).

P 445, The axis labels on Figure 13.4 (a) should be the same as in Figure 13.4 (b).

P 453, Figure 13.12. \(mx_k + b\) should be \(bx_k + a\).

P 474, The indices i and j used in the programs are opposite to their use in the text.

P 523, Exercise 15.1.6, replace “infected” with “newly infected on day zero”.
Replace “Our model follows next.” With “Your predecessors have had, and you probably have, some useful and interesting observations and suggestions. Some of those observations lead to the model I show next.”

Exercise 17.4.11 after $u^{-1}$ insert (the inverse of the function $u$).

Add to the legend of Figure 17.13, “This is Ricker’s model of a fish population. The curve shown as the solution is the Runge-Kutta (Section 17.5.1) approximation to the solution.”

The MATLAB program solves $y' = -ty, y(0) = 2$ the solution of which is $y(t) = 2e^{-t^2/2}$. The program can be changed to solve the problem discussed in Example 17.5.2, $y'(t) = t - y, y(0) = 2$ by adjusting the ylabel and changing

$\text{ys}=2*\exp((-\text{xs}.*\text{xs}/2));$ to $\text{ys} = \text{xs} - 1 + 3*\exp(-\text{xs});$ and

$v(i+1) = v(i) - t(i)*v(i)*h;$ to $v(i+1) = v(i) + (t(i) - v(i))*h;$

Insert $y_k$ in the last equation between $hr$ and $\left(1 - \frac{y_k}{M}\right)$.

“threshold number below which” should be “threshold number (0.1) below which”

Example 17.7.1, second line, “$a = 1$” should be “$a = 0$”

Ex 17.8.1 Table pop ‘tab1’ bev should be Table 17.6

Ex 17.8.4 Third equation should be $\left[\ln(1 - y)\right]' = -1/(1 - y)$

Line – 17, Insert the sentence. “We will use the traditional value $K = (\ln 2)/5568.$”

Exercise 18.1.14 “0.3” in the second equation should be “$\omega$”.

A good Wiggers digram can be found at https://en.wikipedia.org/wiki/Wiggers_diagram.

Semester project (Modified). Compute the cardiac work of a Marathon runner.

Semester Project. The horizontal axis in Figure 9.36 is not linear. The length of the interval [400 500] is less than the length of [600 700]. Others have marked the same graph with a linear scale on [400 700]. See https://commons.wikimedia.org/wiki/File:Chlorophyll_ab_spectra2.png

Which is correct? Are the energies absorbed by chlorophylls a and b significantly changed? You will need irradiance data from https://www.urel.gov/grid/solar-resource/spectra.html, columns 1 and 4.