Math 135 **Honors Accelerated Calculus** **Spring 2017**

Corrections to the textbook *Calculus: One and Several Variables* by Salas/Hille/Etgen
Updated April 26, 2017

- **Page 6, near the middle:** The definition of $[a, b)$ should be
$$[a, b) = \{x : a \le x < b\}.$$
- **Page 8, Example, first line:** 2^1 should be equal to 2, not 1.
- **Page 46, Problem 13:** The definition of g should be $g(x) = \sqrt{x} - 2/\sqrt{x}$.
- **Page 51, Exercises 1.8, Problem 9:** This is false for $n = 1$, so either n needs to be restricted to $n \ge 2$, or the inequality should be changed to "$\ge \sqrt{n}$."
- **Page 60, Figure 2.1.14:** The graph should show an open circle at $(0, 1)$, because $f(0)$ is not defined.
- **Page 74, Theorem 2.3.2:** The statement of part (iii) should read as follows:
(iii) $\lim_{x\to c} [\alpha f(x)] = \alpha L$, α a real number.
- **Page 83, just below Figure 2.4.3:** The definition of the Dirichlet function should be
$$f(x) = \begin{cases} 1, & x \text{ rational}, \\ 0, & x \text{ irrational}. \end{cases}$$
- **Page 96, multiline display:** On the second line, $\tan^2 x - 1$ in the denominator should be $\tan^2 x$.
- **Page 105, Figure 3.1.1:** The caption on the right-hand side should be $h < 0$, not $h > 0$.
- **Page 117, 5th line of the proof:** In the second set of brackets, change $f(x - h)$ to $f(x + h)$.
- **Page 129, problem 61:** The problem should say that n is a positive integer.
- **Page 141, 4th displayed equation:** The arrow should point to the second equal sign, not the first.
- **Page 146, problem 67:** Change "Exercise 62" to "Exercise 59."
- **Page 243, last line:** Instead of $\frac{137}{16} \cong 8.5625$, it should say $\frac{137}{16} = 8.5625$.
- **Page 252, Problems 14 and 15:** L_f and U_f are printed in the wrong font: They should be ordinary italics, not script letters.
- **Page 281, proof of (5.8.3), first line:** Change "$f(x) - f(x)$" to "$g(x) - f(x)$."
- **Page 410, Exercise 78(b):** There's a sign error in the last term of the formula. It should be
$$f(b) - f(a) = f'(a)(b - a) + \frac{f''(a)}{2}(b - a)^2 + \int_a^b \frac{f'''(x)}{2}(x - b)^2\, dx.$$
- **Page 469, line above the last displayed equation:** Change $(c, 0)$ to $(0, c)$, and $x = -c$ to $y = -c$.
- **Page 476, exercise 29:** Add the stipulation that $a \ne 0$. (Otherwise, it's not a quadratic function.)
- **Page 501, exercise 24(d):** It should say "from $(3, 0)$ to $(-3, 0)$."
- **Page 514, formula (10.7.6):** The formula should have ds/dt in place of the first dx/dt:
$$\nu = \frac{ds}{dt} = \sqrt{\left(\frac{dx}{dt}\right)^2 + \left(\frac{dy}{dt}\right)^2}.$$
- **Page 516, Problem 38:** should read "from time $t = 0$ to time $t = 2\pi$" (not $t = 2t$).

- **Page 530, Example 1(a):** The condition on s should read

$$1 - 0.0001 < s \leq 1.$$

- **Page 613, Exercise 66:** The formula for s_q should be

$$s_q = \sum_{k=0}^{q} \frac{1}{k!}.$$

- **Page 696, last displayed equation:** The denominator in the center fraction should be h, not $\mathbf{h}$.

- **Page 713, Exercise 17:** There are two typos in the formulas for $\mathbf{r}_1$ and $\mathbf{r}_2$. They should be

$$\mathbf{r}_1(t) = e^t\,\mathbf{i} + 2\sin(t + \tfrac{1}{2}\pi)\,\mathbf{j} + (t^2 - 2)\,\mathbf{k},$$
$$\mathbf{r}_2(u) = u\,\mathbf{i} + 2\,\mathbf{j} + (u^2 - 3)\,\mathbf{k}.$$

  (The e' should be e^t in $\mathbf{r}_1$, and the equal sign should be $+$ in $\mathbf{r}_2$.)

- **Page 721, Exercise 23:** The second $\mathbf{i}$ should be $\mathbf{j}$.

- **Page 784, Exercise 23(b):**: The last equation should be $\partial f/\partial y = xy$.

- **Page 835, Exercise 32(b):** Change the first "maximum" to "minimum": "f has a local minimum at $(1, 0)$ and at $(-1, 0)$ ...."

- **Page 840, Exercise 13:** The domain should be given by $-2 \leq x \leq 2$, $x \leq y \leq 1$.

- **Page 840, Exercise 16:** The formula for the ellipse should be $\frac{1}{4}x^2 + y^2 = 1$. (In some printings, it's erroneously printed as $\frac{1}{4}x^2 + y = 1$.)

- **Page 866, proof of (17.1.5), first line:** There should be an equal sign after C:

$$B = \sum_{i=1}^{m} b_i, \quad C = \sum_{j=1}^{n} c_j.$$

- **Page 879, equation (17.3.2):** On the right-hand side, the inner integral should be with respect to x, not y:

$$\boxed{\iint_{\Omega} f(x, y)\,dx\,dy = \int_c^d \left(\int_{\psi_1(y)}^{\psi_2(y)} f(x, y)\,dx \right) dy.}$$

- **Page A-16, solution to Exercise 41:** $\text{range}(f) = \{-1, 1\}$.

- **Page A-24, solution to Section 3.6 Exercise 67(b):** There's a sign mistake in the last term. But more importantly, this argument is misleading, because you cannot conclude that the limit of a difference is the difference of the limits unless you know that both limits exist. Instead, this should be read as an argument by contradiction: assuming that $g'(x)$ is continuous, it then follows from this computation that $\cos(1/x)$ has a limit as $x \to 0$, which is false.

- **Page A-65, solution to Section 12.9 Exercise 41:** The answer should be e^{x^3}.

- **Page A-70, solution to Section 14.5 Exercise 33:** The answer should be $\frac{1}{2}\sqrt{2}e^{-t}$. (In some printings, an erroneous answer is given.)