Errata
Numerical Methods for Physics
First Edition

Updated March 16, 1998

Corrections

Page 10: In the second sentence on the page, the example should read "try help &" instead of "try help %".

Page 11: In Exercise 1.4, the second sentence should read "For various matrices, ..." instead of "For the various matrices, ...".

Page 17: In Exercise 1.11, the second sentence should read "Using `intrpf`, ..." instead of "Using `intrp`, ...".

Page 52: In Exercise 2.17, the terms in the numerator and denominator which contain a τ^4 should have a τ^2 instead.

Page 71: In Exercise 3.12, the second equal sign in the equation (between the time derivative terms) should be a plus sign.

Page 73: In the third sentence on the page, the phrase "shouldn't be to eager" should read "shouldn't be too eager".

Page 77: In Exercise 3.19, the units on g should be $\mathrm{m/s^2}$ instead of m/s.

Page 109: Remove the word "`is`" from line 2 of Listing 4.2.

Page 122: In Equations (5–6a) and (5–6b), the term "y_j" should read "y_i", that is, the subscript should be i instead of j.

Page 133: Line 2 of Listing 5.4, the last word should read "`transform`" instead of "`tranform`".

Page 134: Line 14 of Listing 5.4 should read "`= %g\n`" instead of "`= %g/n`".

Page 171: Second sentence of the middle paragraph, the value of t_σ should be 3.125×10^{-4}.

Page 173: The first line on the page should read "and velocity of the particle" instead of "and velocity **d** of the particle".

Page 212: In Equation (7–25), the term "ny" should read "N_y".

Page 258: In Exercise 8.20, the left hand side of the equation should read "$V(x)$" instead of "V_i".

Page 275: In the second paragraph, the first sentence should read "(see Section 4.3)" instead of "(see Section 4.4)".

Page 279: In Equation (9–35), the first line should read "$+V_o$" instead of "$-V_o$".

Page 287: The line after Equation (9–55) should read "$k = 0, 1, \ldots N-1$".

Page 288: In Equation (9–62), the left hand side should read: $w_1 f(-\sqrt{3/5}) + w_2 f(0) + w_3 f(\sqrt{3/5})$. That is, the values of x_1 and x_3 are interchanged; final result is unchanged due to symmetry.

Page 290: In Equation (9–71), the last term should read "ψ_m^0" instead of "ψ_m".

Page 293: In the last sentence of Exercise 9.23, the expression should read "$0 < x_m < 4$".

Page 301: In Equation (10–8), the $\cos\theta$ should be replaced with $\sin\theta$.

Page 317: From the top of the page, it should read:

$$P(\theta)d\theta = \sin\theta d\theta \qquad (10-44)$$

Using the change of variable $q = \cos\theta$, we have $P(q)dq = (1/2)dq$, so q is uniformly distributed in the interval $[-1, 1]$. We don't really need to find θ; instead we compute

$$\begin{aligned} q &= 2\Re - 1 \\ \cos\theta &= q \qquad\qquad (10-45) \\ \sin\theta &= \sqrt{1-q^2} \end{aligned}$$

Page 324: In the last line of Exercise 10.21, interchange the words "left" and "right".

Page 334: The third sentence should read "particle collisions with" instead of "particle collision with".

Clarifications

General: The Student Edition of MATLAB limits the size of vectors and matrices. Some examples in the book exceed these limits; to run them with the Student Edition, simply use fewer data points.

Page 52: In Exercise 2.16, do not assume Equation (2–33a).

Page 77: In Exercise 3.17, graph $r(t)$ and $\theta(t)$ for at least 300 points.

Page 98: In Exercise 4.3, estimate the time averages using running averages for the computed values of x and y.

Page 111: In Exercise 4.17, both V and E are positive quantities.

Page 182: Take the initial condition $a(x, t = 0)$. Note that the boundary condition at $L/2$ is mathematically irrelevant.

Page 196–197: In Exercises 6.17–20, use the Lax–Wendroff method.

Page 251: In Exercises 8.16 and 17, do the update of the nonlinear advection term explicitly and the other term implicitly.

Page 313: In Exercise 10.8, the limits of integration are a) 0 to 1; b) 0 to ∞ and c) $-\infty$ to ∞.