Errata: Numerical Analysis of Partial Differential Equations Using Maple and MATLAB, first edition

- page 55 Theorem 2.6: the arguments in the statement of the theorem and the proof should be (x_i, y_j) instead of (x_i, x_j) to be consistent with the rest.

- page 75 (not 80): in equation (3.12) the Laplacian is missing:

$$\begin{aligned} \int_{V_i} \Delta u d\mathbf{x} &= \int_{\partial V_i} \frac{\partial u}{\partial n} ds \\ &\approx \sum_{j=1}^{4} \frac{u_j - u_i}{h} h \stackrel{!}{=} h^2 f_i \end{aligned} \tag{1}$$

- page 78 (not 84): in the displayed equation before (3.20) the Laplacian should be higher dimensional, and a minus sign is missing:

$$-\int_V \Delta u dx = -\int_{\partial V} \frac{\partial u}{\partial n} = \int_V f dx.$$

  The same minus sign is also missing in equation (3.20):

$$-\sum_{i=1}^{3} \frac{u_i - u_c}{\sqrt{(x_i - x_c)^2 + (y_i - y_c)^2}} \sqrt{(\xi_{i+1} - \xi_i)^2 + (\eta_{i+1} - \eta_i)^2} = \mathrm{vol}(V) f_i,$$

- In the proof of Theorem 3.4 on page 81, in the displayed formula just before 'which leads to the closed form summation formula', in the denominator of the third term there should be $h_{\frac{5}{2}}$ instead of $h_{\frac{3}{2}}$:

$$= \frac{u_1^2}{h_{\frac{1}{2}}} + \frac{(u_2 - u_1)^2}{h_{\frac{3}{2}}} + \frac{(u_3 - u_2)^2}{h_{\frac{5}{2}}} + \ldots + \frac{u_N^2}{h_{N+\frac{1}{2}}},$$

- Statement of Lemma 4.9 on page 104, $j > 1$ should be replaced by $j > i$:

$$\hat{D}_C(i,j) = \begin{cases} j-1, & i = 1,\ j > 1,\ j \text{ even}, \\ 2(j-1), & i > 1,\ j > i,\ i + j \text{ odd}. \end{cases}$$