Errata for "A short course in mathematical methods with Maple" by Aratyn and Rasinariu.

Page 20. At the bottom of the page replace "counterclockwise" with "clockwise".
Page 21. At the top of the page replace "clockwise" with "counterclockwise".
Page 32. There are typos in eq. (1.62). The correct equation should be:

$$\Phi'(0) = \frac{\mathrm{d}\phi}{\mathrm{d}s}(\vec{r}_0) = \frac{\partial\phi}{\partial x}\frac{\partial x}{\partial s}+\frac{\partial\phi}{\partial y}\frac{\partial y}{\partial s}+\frac{\partial\phi}{\partial z}\frac{\partial z}{\partial s} = \frac{\partial\phi}{\partial x}u_1+\frac{\partial\phi}{\partial y}u_2+\frac{\partial\phi}{\partial z} = \vec{\nabla}\phi(\vec{r}_0)\cdot\hat{u}$$

Page 34. In the second line of Example 1.2.3 there is a missing period between "$y = x^2 + C$" and "The". The line should read
"parabolas $y = x^2 + C$. The gradient vector $\vec{\nabla}\phi(x, y) = -2x\,\hat{i} + \hat{j}$ is normal to"
Page 65. The last sentence of Problem 1.3.29 should contain formula $\vec{r} \times \dot{\vec{r}}$ instead expression $\vec{r} \times \underline{\dot{r}}$.
Page 71. The first sentence in **Example 1.4.4** should say "... and height $2h$." instead of "... and height h.".
Page 72. There is a typo in eq. (1.155). The correct equation should read:

$$\vec{r}(u, v) = R\sin u\cos v\,\hat{i} + R\sin u\sin v\,\hat{j} + R\cos u\;\hat{k}\,.$$

Page 90. The last line at the bottom of this page should read "Recall expression (1.132a):"
Page 95. In Problem 1.4.14 the vector field $\vec{F}$ should read $\vec{F} = x^3\,\hat{i} + y^3\hat{j} + yz^2\;\hat{k}$.
Page 96. In Problem 1.4.18 the vector field $\vec{F}$ should read $\vec{F} = x^2\,\hat{i} + y^2\hat{j} + (y^2 - x^2)\;\hat{k}$.
Page 109. In the text between eq. (2.35) and (2.36) replace $\vec{e}_i$ with $\hat{e}_i$.
Page 121. Replace the sentence below eq. (2.78) by: "Thus, for two matrices

$$\underline{\underline{A}} = \left[\underline{a}_1 \quad \cdots \quad \underline{a}_i \quad \cdots \quad \underline{a}_n\right], \qquad \underline{\underline{B}} = \left[\underline{a}_1 \quad \cdots \quad \underline{b}_i \quad \cdots \quad \underline{a}_n\right]$$

which differ only by i-th column (or i-th row), the determinant of the matrix formed by adding the i-th column from two matrices, and taking the other elements from $\underline{\underline{A}}$ or from $\underline{\underline{B}}$ is equal to sum of determinants $\left|\,\underline{\underline{A}}\,\right| + \left|\,\underline{\underline{B}}\,\right|$.
Page 128. Replace equation just above Example **2.1.11** by

$$\text{column rank of } \underline{\underline{A}} = \text{row rank of } \underline{\underline{A}} = \text{rank}\,\underline{\underline{A}}\,.$$

Page 199. Expression for $y(x)$ in eq. (3.61) should be

$$y(x) = c_1 e^{(\rho+\mathrm{i}\,\beta)x} + c_2 e^{(\rho-\mathrm{i}\,\beta)x} = e^{\rho x}\left[(c_1+c_2)\cos(\beta x) + \mathrm{i}\,(c_1-c_2)\sin(\beta x)\right]$$

Page 125. In the line just below eq. (2.92) replace $\underline{c} = \underline{\underline{A}}^{-1}\,\underline{\underline{A}}\,\underline{c}0$ by $\underline{c} = \underline{\underline{A}}^{-1}\,\underline{\underline{A}}\,\underline{c} = 0$.

Page 160. In Example 2.3.2 expression for characteristic polynomial should read :

$$\left|\,\underline{\underline{A}} - \lambda\underline{\underline{I}}\,\right| = -\lambda + \lambda^2 + 1 - \lambda^3 = -(\lambda-1)(1+\lambda^2)$$

Page 161. In the displayed equation in Problem 2.3.2 replace $\underline{\underline{R}}\ (\underline{\omega},\ \phi)$ by $\underline{\underline{R}}^{-1}\ (\underline{\omega},\ \phi)$.

Page 213. In Example 3.2.8, 4-th line from bottom, replace $Y_1(x) = \cos(2x)/6$ by $Y_2(x) = \cos(2x)/6$

Page 221. There is a typo in eq. (3.135). The correct equation should read:

$$\left(-\omega^2 L + \mathrm{i}\,\omega R + \frac{1}{C}\right) K e^{\mathrm{i}\,\omega t} = E_0 \omega e^{\mathrm{i}\,\omega t}$$

Page 237. The last sentence at the bottom of pg. 237 should be:
Plugging $y_1(x) = 1$ and $p(x) = -2x/(1-x^2) = 1/(1+x) - 1/(1-x)$ we obtain

$$y_2(x) = \int^x \exp\left(-\int^{x'}\left(\frac{1}{(1+z)} - \frac{1}{(1-z)}\right)\mathrm{d}z\right)\mathrm{d}x' = \frac{1}{2}\ln\frac{(1-x)}{(1+x)}\,.$$

Page 260. In example 4.3.5 the top equation should read

$$x^2\frac{\mathrm{d}^2 y}{\mathrm{d}x^2} + 2x\frac{\mathrm{d}y}{\mathrm{d}x} + \frac{1}{16}\sqrt{x}y = 0$$

Equation at the bottom of that page should be:

$$\begin{aligned} y &= c_1 x^{1/4} J_{1/2}(2\sqrt{x}) + c_2 x^{1/4} J_{-1/2}(2\sqrt{x}) \\ &= c_1\sqrt{\frac{1}{\pi}}\sin(2\sqrt{x}) + c_2\sqrt{\frac{1}{\pi}}\cos(2\sqrt{x}) \end{aligned}$$

Page 480. Remove commas from inside matrices M and M_1 in equations (9.3) and (9.4).

Page 481. Equation

$$> \quad dM1 := \text{Determinant}(M);$$

should be

$$> \quad dM1 := \text{Determinant}(M1);$$

Page 481. The matrix G in equation (9.5) should be

$$G = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 2 & 3 \\ 0 & 1 & 1 \end{bmatrix}$$