Errata for "Mathematical Physiology" - Second Edition

Remark: Following is a list of known errors in the 2nd edition of Mathematical Physiology.

- pg. 45, exercise 13 (d), "showing that $\sigma + \epsilon_1\lambda_1\alpha_1 x + \epsilon_2\lambda_2\alpha_2 y$ is ..."
- pg.89, line 1, "where N is the mole fraction of solute."
- pg. 104, eqn. (2.191) should read $\cdots = k(1 - P(C_i, t))\cdots$.
- pg. 105, eqn.(2,197) should read $= \Phi_j(t)P(S(t + dt) = j|\cdots$
- pg. 177, Figure 2, the arrow beside $I_t dx$ is pointed in the wrong direction. The label for the voltage at the node on the lower left should be $V_i(x)$
- pg. 186, line after equation (4.45), $V_0(X) = \int_{-\infty}^{\infty} V(X, T)dT$,
- pg. 189, eqns 4.64, 4.66 have strange extra symbols [6*bp*] at the beginning, should be deleted
- pg. 191, equation (4.80) and lines -7, -8 use confusing notation. The L here is the linear operator, not the domain length.
- pg. 294, Table 7.3 $K_p = 0.1\mu$M
- pg. 317, line -12, $\frac{A}{k_s} = 5$.
- pg. 334, line 11, w, not ω
- pg. 336, Eqn. (7.156) should read

$$\frac{\partial u}{\partial t} = \frac{\partial}{\partial z}(D(\xi)(\frac{\partial u}{\partial z} + \frac{1}{\epsilon}\frac{\partial u}{\partial \xi})) + \frac{1}{\epsilon}\frac{\partial}{\partial \xi}(D(\xi)(\frac{\partial u}{\partial z} + \frac{1}{\epsilon}\frac{\partial u}{\partial \xi})) + f(u).$$

- pg. 337, Eqn. (7.161) should read

$$w_1 = W(\xi)\frac{\partial u_0}{\partial z}.$$

- pg. 626, exercise 24 reference should be (12.189-12.190)
- pg. 689, line -10, Exercise 13.13a
- pg. 713, line -3, use $k = 0.7$.
- pg. 827, lines 1 and 2 should read "has the effect of increasing the resistance of the afferent arteriole, and decreasing the resistance of the efferent arteriole, ..."
- pg. 841, Equations (17.48)-(17.50) L should be replaced by 1.
- pg. 843, eqn 17.60 is wrong and as a result so are 17.63 and 17.64.
- pg. 855 eq. (18.8) $\kappa = u_i - u_0 - \gamma\beta F(u_i)$,
- pg. 913 Table 19.2, K_C should be K_{Ca}. Add $g_{dark} = 2\mu$M. In addition, some of the constants in the table are too large, but we aren't sure yet exactly which ones. Stay tuned.
- pg. 953, eqns 20.32-20.34 are wrong. they should read

  Multiplying by $\cos(m\pi x)$, and integrating from 0 to 1 we find

$$\sum_{n=0}^{\infty} \alpha_{mn} A_n = f_m$$

  where

$$\alpha_{mn} = -\frac{1}{2} n\pi \sinh(n\pi\sigma)\delta_{nm} + \int_0^1 \frac{2}{Z(x)} \left[\cosh(n\pi\sigma)\cos(n\pi x)\cos(m\pi x)dx\right]$$

  and

$$f_m = \sigma\delta_{m0} - \int_0^1 \frac{x(2-x)\cos(m\pi x)}{Z(x)}\, dx.$$