List of Errata in POMC8 (last revised Feb. 12, 2019)

Figure 1.16  The charge shown on each Ne isotope should be shown as 2+ to be consistent with the wording in the first paragraph in Section 1.5

Page 26  In the middle of the first paragraph of Section 1.6, the word “grealy” should be changed to “greatly”.

Page 40  In the first equation on page 40, there should be the number 2 before $H_2O$.

Page 65  Four lines before Example 3.1, it should say Newton's third law, not Newton's second law.

Page 97  The entry 0.2082 Å in equation 3.24 should read 0.2082 Å/D.

Page 111  Change “considered in the previous section” to “considered in Section 3.9.5”

Page 123a) In the end-of-chapter problem 8, the word “electron” in part a) should be “helium nucleus”.

Figure 4.15 Label below (b) should be “Absorption spectrum” not “Absorbing spectrum”

Page 176b  Problem 35(a) should read “in its corresponding velocity component” (rather than in its velocity component in this direction)

Page 218  Problem 5.29 lists slightly incorrect electron speeds for the photoelectron spectrum. The correct speeds of the electrons for the four peaks are: $7.9924 \times 10^6$ m s$^{-1}$, $2.0421 \times 10^7$ m s$^{-1}$, $2.0712 \times 10^7$ m s$^{-1}$, and $2.0956 \times 10^7$ m s$^{-1}$.

Page 247  In Equation 6.11b the last term should have a prime on it, so should read $C_B(2s^8)$, not $C_B(2s^8)$. In the prior equation, Equation 6.11a, the $C_B(2s^8)$ is correct as is (no prime needed in that one).

Figure 8.1, Page 327  The atomic radius for Mn is in error. See https://www.webelements.com/manganese/atom_sizes.html

Page 350  In the next to last sentence on the page, the sentence starting with “Square planar complexes of metals…””, d$^8$ should be replaced by d$^6$ in two places.

Figure 8.26. Add s orbitals to the list of orbitals in the figure caption.

Figure 8.31  Part (a) (the left frame in the figure) should be revised to the figure below and part (b) of the figure should have the t$_{2g}^*$ label moved to the uppermost orbitals in the center of the MO diagram and the three p($\pi$) orbitals copied into the center of the diagram.
Page 361 In Figure 8.31b, the $t_{2g}^*$ label should be on the three orbitals directly above the $e_g^*$ ones, not above the Empty ligand $p(\pi^*)$ label.

Page 367b Problem 8.34 concerns the reduction of the 3+ ions to the corresponding 2+ ions. There are four typos in the middle of the question. It should say “It is an experimental fact that Mn$^{3+}$ and Co$^{3+}$ are more easily reduced …” and “…is harder to reduce than Mn$^{3+}$ and Co$^{3+}$.”

Page 367b Problem 8.39 should read “Estimate the CFSE for the complex in Problem 37.”

Page 367b Problem 40 should read “Estimate the CFSE for the complex in Problem 38.”

Page 367c The formula for the coordination complex compound in part c) has an erroneous closed square bracket at the end. It should be written $[\text{Zn(OH}_2\text{)}_3\text{OH}]\text{Cl}$.

Page 413f Problem 9.91 is a near duplicate of Problem 1.43. Replace in the 9th edition.

Page 476 Change “colligative properties of solutions describe how nonvolatile solvents cause these changes” to “colligative properties of solutions describe how nonvolatile solutes cause these changes”.

Page 477 Part c) of Cumulative Exercise: The driving force for the sap rise is actually not from osmotic pressure; but rather from trapped CO$_2$ produced in an enzymatic metabolism of starch in the tree roots.

Page 447a In Problem 11.13(b) the erroneous H$_2$O(ℓ)(s) in the middle of the products should be deleted to read $\text{K}_2\text{CO}_3(s) + 2 \text{HCl}(aq) \rightarrow 2 \text{KCl}(aq) + \text{CO}_2(g) + 2 \text{H}_2\text{O}(\ell)$.
Page 494  The equation currently written as \( U = q_P - P\Delta V \) is missing a \( \Delta \). It should read \( \Delta U = q_P - P\Delta V \).

Page 514  Under the green box [12.16], Change "Again, not that" to "Again, note that"

Page 520  In Example 12.12 the value of \( k_b \), (2 places) should be changed from \( 1.380 \times 10^{-23} \) to \( 1.381 \times 10^{-23} \), and the intermediate values of \( k_bT \) and the energy in vibration (the multiples of \( 6.42 \times 10^{-21} \)) should be kept to more significant figures in that calculation.

Page 525  In end-of-chapter Problem 4 the wording “take the height of the waterfall to be \( \Delta h \)” should be changed to “take the initial height (vertical position) of the water to be \( h_i \) and the final height of the water to be \( h_f \)”, so the change in height is negative as it falls.

Page 525d  In Problem 46 (Chap 12) change cyclohexane to cyclohexene.

Page 525g  In Problem 80 (Chap 12) change in the middle of the problem from “the work done” to “the work done on the oxygen”

Page 610h  In Problem 91 (Chapter 14) the equation has a typo. 10.560 K should be 10,560 K.

Page 723  In the sentence beginning with “Vacancies (holes) left in the…” it should say “Vacancies (holes) left in the valence band…” (not conduction band).

Page 751  In Problem 2 (Chap 17), the latter half of the expression for the galvanic cell has a typo. It should read HCl\((aq)\), not HCl\((aq)\).

Page 751a  In Problem 13 (Chap 17), the first half-cell has a typo. It should be a Br\(_2\)Br\(^-\) half-cell

Page 751a  In Problem 23 (Chap 17), the product should be Mn\((s)\), not MN\((s)\)

Page 751b  In Problem 25 (Chap 17) in part (b) of the problem, the choice of reducing agents should be Br\(_2\)(\(\ell\)) or Br\(^-\), not Br\(_2\)(\(\ell\)) or Br\(_2\).

Page 759b  In problem 34 the reactant H\(_2\)O\(^+\) should be H\(_3\)O\(^+\).

Page 806a  In end-of-chapter problem 17, just below the displayed equation, it should say NH\(_4^+\), not NH\(_4^-\).

Page 806c  In problem 30(b) the equation “\(O_3 + NO \rightarrow O_2 NO_2\)” a + sign is missing. It should read “\(O_3 + NO \rightarrow O_2 + NO_2\)”

Page 806d  In problem 43 (Chap 18) near the end of the problem it should read “an ethane” rather than “a ethane”. The T in the rate constant expression should be in
Page 821 In Figure 19.6, near the center, the chemical symbol for radon is incorrect. It should be $^{222}_{86}$Rn (not $^{222}_{86}$Ru).

Page 838c In problem 41 in the chemical reaction given, the barium product mass number is incorrect. It should be $^{139}_{56}$Ba (not $^{130}_{56}$Ba). It is given correctly in the last sentence of the problem.

Page 852 In Equation 20.6a, there should be a few extra spaces separating the formula $hBJ(J+1)$ from the list of possible values of the quantum number $J = 0, 1, 2,...$

Page 866 The equation near the top of the page should show that the total vibrational energy in a polyatomic molecule is the sum of the vibrational energy in all the modes, so the rightmost two equal signs should be replaced by + signs.

Page 908 In Figure 21.6, the drawing of the trigonal primitive should show the top face with all solid lines (two are erroneously shown dotted).

Page 914 In two places in Table 21.2 the square root should not extend over the $\pi$, so the table should have $\sqrt{3}\pi/8 = 0.680$ and $\sqrt{2}\pi/6 = 0.740$ as the two last entries on the lowest row.

Page 927-8 It is poor notation at the bottom of page 927 to call the nearest neighbor distance at which $V(R_0)$ is a minimum by the same symbol as the variable $R_0$ in the potential. Best to rewrite the last equation on page 927, which comes from evaluating the equation $\frac{dV}{dR_0}\bigg|_{R_0=R_{0,\text{min}}} = 0$, as $R_{0,\text{min}} = 1.09\sigma$. Then Table 21.4 lists $R_{0,\text{min}}$, the optimum value of $R_0$ at which the potential energy of the molecular crystal is minimized.

Page 934a In problem 21.20 the perovskite unit cell is incorrectly described. Half of the actual unit cell is shown in the figure to the right. It does have the same empirical formula as the erroneous unit cell described in the problem, but each half contains two formula units, for a total of four formula units. The unit cell volume is 224 cubic angstroms.

Appendix C, page A.30 Table C.2. In the third column, to integrate the function $\frac{1}{x}$ it should have $\int_{x_1}^{x_2} \frac{1}{x^2} \, dx = -\left(\frac{1}{x_s} - \frac{1}{x_1}\right)$

Appendix G, page A.58. There is a typo in the answer to the second question of problem 19 in Chap 4. Replace “$E_3 = 26.06 \times 10^{-18}$ J” with “$E_3 = -6.06 \times 10^{-18}$ J” so the energy required to pull the electron away from the cation is $6.06 \times 10^{-18}$ J”
Appendix G, page A.58  The solution to problem 4.33 is missing. The answers are a) the crystal spacing $a = 2.29 \, \text{Å}$ (assuming $n = 1$) and b) $34^\circ$.

Appendix G, page A.60  In the solution to problem 6.47, the words "an s" should be changed to "a $\sigma$" (where $\sigma$ is the Greek symbol sigma).

Appendix G, page A.62  In the solution to problem 8.3 delete the space between the + and the 5. It is referring to the +5 oxidation state.

Appendix G, page A.65  In the solution to problem 12.57, a “−” sign should replace a “2” in two places. The solution should read $T_l = 144 \, \text{K}$; $w = \Delta U = -3.89 \, \text{kJ}$; $\Delta H = -6.48 \, \text{kJ}$.

Appendix G, page A.65  In the solution to problem 13.39(c) the answer for the work done by the engine should be 500 J, not −500 J. Write: “(c) work done by engine = 500 J” Do not use the symbol $w$ for this work so as to avoid confusion with the work done on the engine.

Appendix G, page A.66  In the solution to problem 14.63(b) the answer for $\Delta H^\circ$ also has a 2 instead of a minus sign. The correct answer is $\Delta H^\circ = -55.6 \, \text{kJ}$. The other answers are correct.

Appendix G, page A.67  Problems 15.71 and 15.73 show answers unrelated to the stated problems (pending addition of the correct solutions to the cubic equations in the 9th edition).

Appendix G, page A.68  In the solution to problem 17.13 the cathode reaction is written incorrectly. It should read:

\begin{equation}
\text{cathode: } \text{Br}_2 + 2 \, \epsilon \rightarrow 2 \, \text{Br}^-
\end{equation}

Appendix G, page A.68  In the solution to problem 17.49, the answer should be corrected for water at pH = 7.

Appendix G, page A.69  In the solution to problem 19.31, the chemical symbol for a neutrino, the third product in both reactions, should be $\nu$, not $n$. (correction in 2 places)

Appendix G, page A.69  The solution to problem 20.15 is 1.21 Å (the problem did not ask for a moment of inertia, so delete the moment of inertia given in the current solution).

Appendix G, page A.70  In the solutions to problem 22.5(b) the oxidation state of K is incorrect. It should be +1, not 11.

Appendix G, page A.71  The solution to problem 1(b) in the Appendix A problems should be $4.02 \times 10^2$ (not $1.402 \times 10^3$).
Appendix G, page A.71  The solution to problem 7(b) in the Appendix B problems should be $1.15 \times 10^3$ (not $1.51 \times 10^3$). (note 2 changes: the 1.15 and the exponent 3)

Appendix G, page A.71  If you solve problem 11(b) in the Appendix C problems iteratively, you will get $4.07 \times 10^{-2}$. A graphical solution or solving the cubic equation will give you the two additional solutions, 0.399 and −1.011. Always assess whether a solution found in these ways are physically valid – e.g. a concentration is never negative!

Physical Constants (in the inside back cover of the text)  The first item is Avogadro’s constant, incorrectly named Avogadro’s number in the text and here in the Physical Constants list. This change will be made throughout the text in the 9th edition.