Chapter 1

p.27 In the last line of the paragraph after Equation (1.18b), the last phrase should be: one ohm^{-1} is defined as one Siemen (S).

p.28 Four lines from the bottom, units for lambda (λ) should be S/(eqv-cm^2), not S/(eqv-cm^3).

p. 29 Table 1.2 title, units for lambda (λ) should be S/(eqv-cm^2), not S/(eqv-cm^3).

Chapter 2

p.48 Top, *Standard molar enthalpy of reaction*; $\Delta \bar{H}_r^o$ in text and in equation.

p.55 In the table at the bottom of the page, the values of log γ, γ, and Activity for Ca^{2+} should be –0.089, 0.814, and 8.14×10^{-5}, respectively. The corrected table appears below:

Ion	Size Parameter *a*	log γ	γ	Activity
Na^+	4	–0.0230	0.948	1.90×10^{-3}
Cl^-	3	–0.0230	0.948	1.14×10^{-3}
Ca^{2+}	6	–0.089	0.814	8.14×10^{-5}
HCO_3^-	4	–0.0230	0.948	9.48×10^{-4}

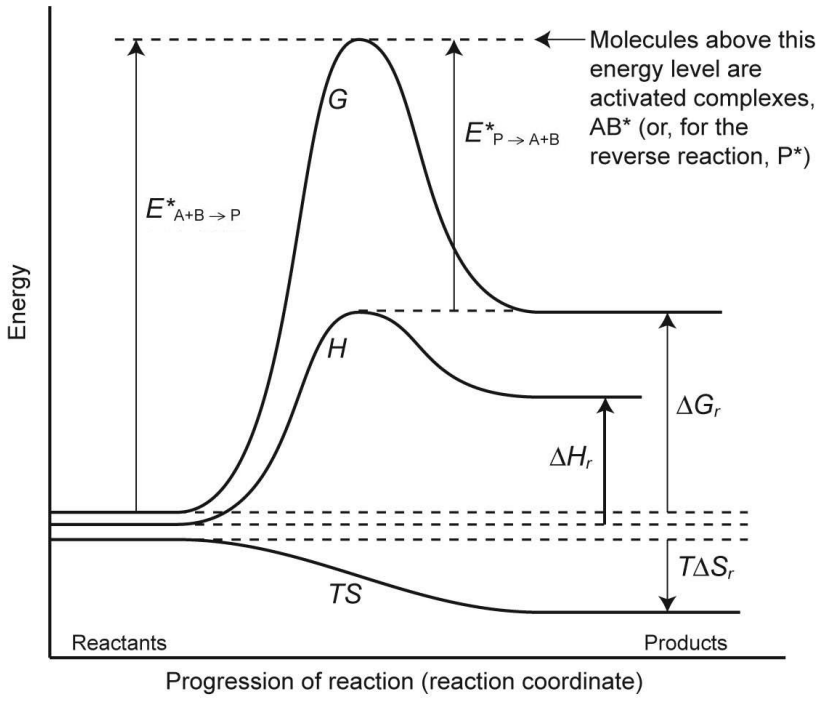
p.58 Lines 4-5, "reactant molecules . . . products," should be "product molecules . . . reactants."

Chapter 3

p.81 In the second line of the paragraph above Equation (3.1), delete the word "negative." Sentence should read:

Figure 3.1 includes three curves — one for the enthalpy (*H*) of the molecules, one for the product of the system temperature and the **entropy (*S*)** of the molecules, and one for their **Gibbs energy (*G*).**

p.82 In Figure 3.1, the two *E** terms are reversed. The term on the far left should be $E^*_{A+B \rightarrow P}$ and the term on the right should be $E^*_{P \rightarrow A+E}$. The corrected figure appears below:



Problems p.126

In Problem 12, the rate constant in line 8 has incorrect units. The expression should be:

$$k = 10^{-3.2}\ \text{atm}^{-1} \cdot \text{s}^{-1}, \quad \text{not} \quad k = 10^{-3.2}\ \text{atm}^{-1} \cdot \text{d}^{-1}$$

p.128

The revised version of Problem 19 is available on the book's webpage at waveland.com.

Chapter 4

p.218

In the lines just before section 4.4, the value 1.13×10^{-4} should be 1.31×10^{-4}.

Chapter 7

p.366

The equations at the top of p.366 are incorrect. Replace that material with the following content:

$$\text{HAc}_{\text{added}} = \textbf{Acetate}-1_{\text{eq}} - \textbf{Acetate}-1_{\text{in,init}} = 1.1934 \times 10^{-3} - 1.0 \times 10^{-4}$$

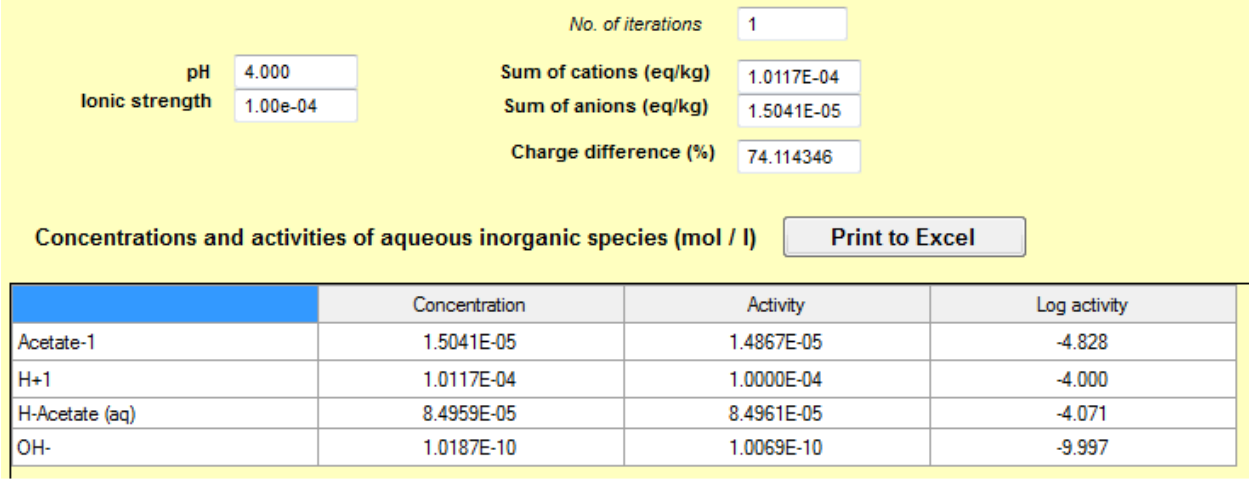
$$= 1.0934 \times 10^{-3}$$

$$\text{HAc}_{\text{added}} = [\mathbf{H}^+]_{\text{eq}} - [\mathbf{H}^+]_{\text{in,init}} = 1.0934 \times 10^{-3} - 0 = 1.0934 \times 10^{-3}$$

p.367

In Figure 7.6 the table values and the caption are incorrect, as well as the equations and numerical values in the paragraph below the figure. Corrected material appears below:

(a)

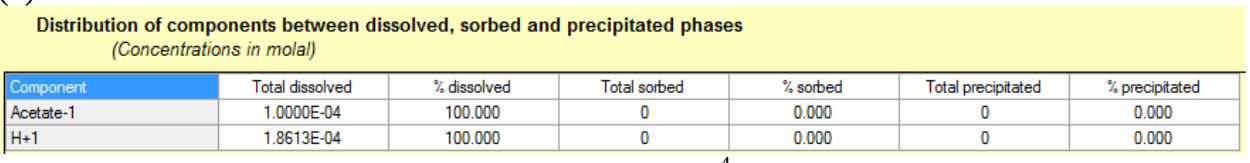


No. of iterations	1
pH	4.000
Ionic strength	1.00e-04
Sum of cations (eq/kg)	1.0117E-04
Sum of anions (eq/kg)	1.5041E-05
Charge difference (%)	74.114346

Concentrations and activities of aqueous inorganic species (mol / l) — Print to Excel

	Concentration	Activity	Log activity
Acetate-1	1.5041E-05	1.4867E-05	-4.828
H+1	1.0117E-04	1.0000E-04	-4.000
H-Acetate (aq)	8.4959E-05	8.4961E-05	-4.071
OH-	1.0187E-10	1.0069E-10	-9.997

(b)



Distribution of components between dissolved, sorbed and precipitated phases

(Concentrations in molal)

Component	Total dissolved	% dissolved	Total sorbed	% sorbed	Total precipitated	% precipitated
Acetate-1	1.0000E-04	100.000	0	0.000	0	0.000
H+1	1.8613E-04	100.000	0	0.000	0	0.000

Figure 7.6. Output screens for a system containing 10^{-4} *M* HAc which is then adjusted to pH 4.0 by addition of strong acid. (a) Overall summary of solution composition; (b) Equilibrated mass distribution.

Once again, we can compute the amount of reagent added by writing the mass balance, this time on $\mathbf{H}^+$:

$$[\text{HCl}]_{\text{added}} = [\mathbf{H}^+]_{\text{eq}} - [\mathbf{H}^+]_{\text{in,init}} = 1.861 \times 10^{-4} - 1.00 \times 10^{-4} = 8.61 \times 10^{-5}$$

Of the 1.861×10^{-4} *M TOT***H** in the equilibrium solution, 1.012×10^{-4} *M* is present as free H^+ (i.e., H_3O^+), generating an H^+ activity of $10^{-4.0}$. The rest of the *TOT***H** (8.496×10^{-5} *M*) is bound with acetate in HAc molecules. As expected, since the pH of 4.0 is lower than pK_a for HAc (4.74), the protonated species is present at a larger activity (8.496×10^{-5}) than deprotonated Ac^- (1.487×10^{-5}).

Chapter 8	
p.425	In Table 8.6, row (h), the value in the ALK column should be 3.01, not 2.51.
p. 427	In Equation (8.21b), insert a coefficient "2" before α_2.
p.432	In the equation at the bottom of the page, the signs preceding the (H^+) and (OH^-) terms are reversed. The equation should read: $$TOTH = 2H_2CO) + (HCO_3^-) - (OH^-) + (H^+)$$
Chapter 9	
p.480	In the equation shown for part (b), the denominator $c_{L,i}$ in the first fraction should be $c_{L,i}'$ and the term in the denominator ($c_{L,i}'$) in the second fraction should be ($c_{L,i}$).
Chapter 10	
p. 542	On the first page of Table 10.3, some of the entries in the top row showing stability constants for complexes of Ag^+ with EDTA, CN^-, and HS^- are in the wrong columns. The correct entries are as follows: EDTA: AgL 8.05; AgHL 14.74 CN^-: $AgH_{-1}L$ −0.78; AgL_2 20.48; AgL_3 21.7 HS^-: AgL 13.82; AgL_2 17.91; $AgH_{-1}L$ 5.30; $AgH_{-1}L_2$ 8.59 The same change should be made to the copy of this Table in the Appendix, p. 860. See Errata p. 5 for a corrected copy.
p. 544	On the third page of Table 10.3, in the fifth column, showing stability constants for complexes of Hg^{2+} with NH_3, the entry labeled HgL_3 should be moved down one line and changed to HgL_4, and its associated value should be changed from 10.04 to 19.28. The same change should be made to the copy of this Table in the Appendix, p.862. See Errata p. 6 for a corrected copy.
p.559	Table 10.5, add n_e to the equation for $\Delta\bar{G}_r = -2.303 n_e RT\Delta pe$.
Chapter 11	
p.652 Problems	In Problem 22, line 5, change $Zn(OH)_2(s)$ to $Zn(OH)_2(am)$.
Chapter 12	
p.682	In the expression for $\{Cu^+\}/\{Cu^{2+}\}$ near the bottom of the page, $10^{2.72}$ should be $10^{2.69}$, and $10^{-25.92}$ should be $10^{-25.95}$. Two lines lower, in the expression for $\{Co^{2+}\}/\{Co^{3+}\}$, $10^{33.1}$ should be $10^{32.4}$, and $10^{2.46}$ should be $10^{3.76}$.
p.686	The following sentence should be added to the answer to part (a) at the bottom of the page: The half-reaction for oxidation of NH_3 can be obtained by adding the "K_a" reaction for NH_4^+/NH_3 to the half-reaction shown in Table 12.3 for the NO_3^-/NH_4^+ couple.

Chapter 12 (continued)	
p.687	In part (ii) Cl_2/CN^- : In the first reaction shown, the product should be Cl^-, not $½Cl^-$ $½Cl_2\ (aq) + e^- \leftrightarrow Cl^-$ In the third reaction shown, insert a + sign between Cl^- and $½\ OCN^-$ on the product side $½Cl_2\ (g) + ½CN^- + OH^- \leftrightarrow Cl^- + ½OCN^- + ½H_2O$ In the last sentence before equation (12.22), omit the word "log" before variable *K*. The sentence should read By definition, *e*° equals *K* for the oxidation reaction, so we can write:
p.698–99	In line 4 of Example 12.10, $10^{45.61}$ should be $10^{35.4}$, $10^{52.63}$ should be $10^{43.6}$, and $Fe(CN)_6^{3-}$ should be $Fe(CN)_6^{4-}$. (Note that the species $Fe(CN)_6^{3-}$ on the subsequent line is correct.) Correspondingly, the log *K* values for the reactions at the top of p.699 should be 35.4 for the second reaction, –43.6 for the third reaction, and 4.83 (instead of 6.01) for the overall reaction. Also, in the second reaction, the reactant Fe^{3+} should be Fe^{2+}. And, in the final paragraph of the solution, $10^{-6.01}$ should be $10^{-4.83}$, and >6.01 should be >4.83.
p.759 Problems	In Problem 9, line 1, change S(*s*) to SO_3^{2-}.

Table 10.3, p. 542 and Appendix A.5, p 860

Table 10.3 Stability constants for some metal–ligand complexes. Values correspond to log β for formation of the complex from the free metal, the ligand, H^+, and H_2O.

	CO_3^{2-}	SO_4^{2-}	Cl^-	F^-	NH_3	PO_4^{3-}	EDTA		CN^-		HS^-	
Ag^+		AgL 1.30	AgL 3.31	AgL 0.40	AgL 3.31		AgL	8.05	$AgH_{-1}L$	−0.78	AgL	13.82
		AgL_2 5.25		AgL_2	7.21		AgHL	14.74	AgL_2	20.48	AgL_2	17.91
		AgL_3 5.20							AgL_3	21.70	$AgH_{-1}L$	5.30
											$AgH_{-1}L_2$	8.59
Al^{3+}		AlL 3.84	AlL −0.39	AlL 7.01		AlHL 20.01	AlL	18.96				
		AlL_2 5.58		AlL_2 12.63		Al_2L 18.98	AlHL	21.78				
				AlL_3 16.70								
				AlL_4 19.40								
Ca^{2+}	CaL 3.22	CaL 2.36	CaL 0.40	CaL 1.14	CaL 0.20	CaL 6.46	CaL	12.44				
	CaHL 11.43				CaL_2 −0.11	CaHL 15.04	CaHL	15.97				
						CaH_2L 20.92						
Cd^{2+}	CdL 4.37	CdL 2.37	CdL 1.98	CdL 1.20	CdL 2.55	CdHL 16.08	CdL	18.10	CdL	6.01	CdL	8.01
	CdL_2 7.23	CdL_2 3.50	CdL_2 2.60		CdL_2 4.55		CdHL	21.43	CdL_2	11.12	CdL_2	15.31
	CdHL 11.83				CdL_3 5.89		CdH_2L	23.23	CdL_3	15.65	CdL_3	17.11
					CdL_4 6.80				CdL_4	17.92	CdL_4	19.31
Co^{2+}	CoL 4.28	CoL 2.30	CoL −0.35	CoL 1.40	CoL 2.03	CoHL 15.43	CoL	18.16			CoL	5.20
	CoHL 12.22				CoL_2 3.49		CoHL	21.59				

Table 10.3, continued, p. 544 and Appendix A.5, p. 862

Table 10.3 – continued from previous page

	CO_3^{2-}	SO_4^{2-}	Cl^-	F^-	NH_3	PO_4^{3-}	EDTA	CN^-	HS^-
Hg^{2+}	HgL 12.13	HgL 2.47	HgL 7.33	HgL 1.60			HgL 23.24	HgL 17.00	
	HgL_2 15.58	HgL_2 3.48	HgL_2 14.03		HgL_2 17.79		HgHL 26.87	HgL_2 32.75	HgL_2 38.42
	HgHL 16.35		HgL_3 15.03				HgH_2L 29.17	HgL_3 36.31	$HgH_{-1}L_2$ 31.93
			HgL_4 15.63		HgL_4 19.28			HgL_4 38.97	$HgH_{-2}L_2$ 23.22
Ni^{2+}	NiL 4.57	NiL 2.30	NiL −0.43	NiL 1.30	NiL 2.72	NiHL 15.33	NiL 20.11	NiL_4 30.20	NiL 5.49
	NiHL 12.42	NiL_2 0.82	NiL_2 −1.89		NiL_2 4.87	NiH_2L 20.50	NiHL 23.64	$NiHL_4$ 36.03	
					NiL_3 6.53		NiH_2L 24.74	NiH_2L_4 40.74	
					NiL_4 7.65			NiH_3L_4 43.34	
					NiL_5 8.31				
					NiL_6 8.27				
Pb^{2+}	PbL 6.53	PbL 2.69	PbL 1.56	PbL 2.15		PbHL 15.48	PbL 19.71		
	PbL_2 9.94	PbL_2 3.47	PbL_2 1.90	PbL_2 3.24		PbH_2L 21.07	PbHL 22.54	PbL_2 15.27	
	PbHL 13.23		PbL_3 1.80				PbH_2L 24.44	PbL_3 16.57	
			PbL_4 1.38				PbH_3L 25.64		
Zn^{2+}	ZnL 4.76	ZnL 2.34	ZnL 0.46	ZnL 1.30	ZnL 2.21	ZnHL 15.69	ZnL 18.00		$ZnH_{-2}L_2$ −1.43
	ZnL_2 7.30	ZnL_2 3.28	ZnL_2 0.45		ZnL_2 4.49		ZnHL 21.43	ZnL_2 11.07	
	ZnHL 11.83		ZnL_3 0.50		ZnL_3 6.85		ZnH_2L_2 22.83	ZnL_3 16.05	
			ZnL_4 0.20		ZnL_4 8.87			ZnL_4 19.62	