Ch. 18- Free Energy and Thermodynamics

FP- "For Practice"- found within the chapter (FMP is for more practice), CC- "Conceptual Connection" – found within the Chapter, SAQ- Self-Assessment Quiz, numbered questions (with no acronym) are exercises at the end of the chapter. **Complete all parts to each question unless otherwise specified.** Always answer and explain/show work- see selected SAQ and CC questions

EVERY TIME YOU SEE THE WORD "SPONTANEOUS" IN ANY PART OF THE BOOK, YOU HAVE TO SAY TO YOURSELF THERMODYNICALLY FAVORED (thermodynamically favored thermodynamically favored thermodynamically favored.) Got it? Good. The nice College Board folks won't give you credit for the "s" word. They find those responses to be unfavorable. HAHAHA! Moving on…

Topics for Notes	Video Title	Video Link	Length	Problems	Pages
Spontaneous process (thermodynamically favored process)	Spontaneous Processes	http://www.bozemanscience.com/ap-chem-058-thermodynamically-favored-processes	7:05	CC 18.1 (APES for life!)	839-843
Entropy (S), 2nd law of thermodynamics	Entropy	http://www.bozemanscience.com/ap-chem-057-entropy	7:04	CC 18.2, SAQ 14, #83	843-850 (skip section for entropy and state changes on 850-854)
Gibbs Free Energy, 4 cases described EACH with 2 sentences on p. 856-858	Using Gibbs Free Energy	http://www.bozemanscience.com/ap-chem-059-using-gibbs-free-energy	7:56	-Copy the chart and the formula he uses at 5:30 (on formula sheet- FYI) -To each variable in the equation AND box in the chart, draw a line and write a sentence describing what they are describing FP 18.4, CC 18.4, SAQ 2	855-859

ΔS_{rxn}, standard molar entropies, and the 3rd law of thermodynamics	Entropy Changes in Chemical Reactions	https://www.youtube.com/watch?v=8DYGXIftUhM	7:39	FP 18.6, FP 18.7, FP 18.8	859-866 (skip pages 867-872)
Formula in figure 18.14 and 3 bullet points comparing K and ΔG_{rxn}.	Free Energy and the Equilibrium Constant	http://www.bozemanscience.com/ap-chem-071-the-magnitude-of-the-equilibrium-constant *Make sure you note the meaning of the terms endergonic and exergonic	6:44	FP 18.11, CC 18.7, CC 18.8, SAQ 12 (use Gibbs Free Energy = -RT lnK formula- on formula sheet)- don't forget to change to Kelvin and convert your joules to kilojoules while working it out	873-875 (stop at temperature dependence on K)