CHM 1046 Exam 4 Review Sheet
Study all of the concepts, equations, and problems on the following list.
Also, study the exam 4 formula sheet.

- Determine w from changes in volume (ΔV) at constant pressure (P).
  Review problem 1a in the chapter 18 homework, as well as Figures 5.3, 5.6, and 5.19.

- Determine ΔU and ΔH from q, w, P, and ΔV.
  Review problems 1b and 1c in the chapter 18 homework.

- Determine ΔG^o from ΔS^o and ΔH^o (and ΔH^o from ΔG^o and ΔS^o).
  Review Example 18.04, as well as ΔH_f^o's and S^o's and in Appendix G.

- Determine ΔG^o for reaction from ΔG_f^o's of reactants and products.
  Review Example 18.05, as well as ΔG_f^o's in Appendix G.

- Determine if a reaction is spontaneous from Gibbs' free energy.
  Review Examples 18.04 and 18.05, as well as Example 16.8.

- Write expressions for thermodynamic equilibrium constants. Review Example 18.07.

- Determine ΔG from ΔG^o and reaction quotient.
  Review Thermodynamic Reaction Quotient (Q) in chapter 18 class notes.

- Determine ΔG^o from equilibrium constant (and vice-versa). Review Example 18.09.

- Determine ΔG_T^o from ΔS^o and ΔH^o at nonstandard temperatures.
  Review Example 18.10 and Figure 16.12.

- Balance half-cells and overall redox reactions.
  Review Examples 19.01 and 19.02, as well as Figures 17.3 and 17.4.

- Convert cell notation into half-cells and overall redox reactions.
  Review Example 19.04 and Example 17.3.

- Convert written redox reactions into cell notation. Review Exercise 11.

- Determine overall cell potentials using standard reduction potentials.
  Review Example 19.08 and Appendix L.

- Determine K and ΔG^o from E^o.
  Review Examples 19.09, 19.10, and 19.11, as well as Figure 17.7.

- Determine the value of Q, and use Nernst equation to find E.
  Review Example 19.12.

- Determine amount of a reactant consumed using current and time.
  Review Examples 19.14 and 19.15.