Chemistry 106, Objectives Chapter 18, Electrochemistry

Terms:
electrochemistry
voltaic cell (galvanic cell)
anode
cathode
electrolytic cell
electrolysis
ampere
volt
coulomb
Faraday

You should be able to:
1. draw a diagram of a voltaic cell indicating all of the following: anode and cathode and their composition, the half reaction occurring in each half cell, where oxidation and reduction are occurring, composition of each solution, salt bridge, flow of electrons, flow of ions in the salt bridge.
2. breakup a redox reaction into individual balanced half reactions,
3. balance redox reactions by the half reaction method,
4. write the abbreviated cell notation for a redox reaction, or given the abbreviated cell notation write the individual half reactions and the overall reaction,
5. calculate cell potential, $E^0$, and use it to predict spontaneity of redox reactions,
6. list the factors that affect cell potential,
7. rank oxidizing and reducing agents in order of increasing strength,
8. rank species in order of ease of reduction or oxidation,
9. use the Nernst equation to calculate cell potential at nonstandard conditions,
10. draw a diagram of a simple electroplating apparatus indicating all of the following: anode and its composition, cathode, composition of the solution, the half reaction occurring at each electrode, where oxidation and reduction are occurring, flow of electrons, battery's negative and positive terminals,
11. work problems involving electrolysis.