**Department of Chemistry Syllabus**

This syllabi is advisory only. For details on a particular instructor's syllabus (including books), consult the instructor's course page. For a list of what courses are being taught each quarter, refer to the Courses page. *Every instructor has prerogative to teach the course as they see fit and ultimately the instructor's syllabus supersedes all others.*

***CHE 107A: General Chemistry***

Approved:

Suggested Textbook: (actual textbook varies by instructor; check your instructor)

PHYSICAL CHEMISTRY for the Biosciences, by Raymond Chang, (University Science Books. 2005), ISBN 1-891389-33-5

Suggested Schedule:

Chapter 2 Properties of Gases 2.6, 2.8, 2.10, 2.18, 2.30, 2.34, 2.54.

Chapter 3 The First Law of Thermodynamics 3.2, 3.4, 3.6, 3.10, 3.12, 3.14, 3.16, 3.18, 3.22, 3.24, 3.28, 3.36, 3.38, 3.40, 3.46, 3.54, 3.56, 3.60, 3.62, 3.66, 3.74, 3.78, 3.90, 3.92.

Chapter 4 The Second Law of Thermodynamics 4.2, 4.6, 4.8, 4.10, 4.12, 4.14, 4.16, 4.20, 4.26, 4.28, 4.32, 4.36, 4.38, 4.40, 4.50, 4.52, 4.54, 4.56, 4.58, 4.64, 4.66, 4.70, 4.74, 4.76, 4.80.

Chapter 5 Solutions 5.4, 5.6, 5.8, 5.10, 5.12, 5.18, 5.24, 5.28, 5.30, 5.34, 5.36, 5.38, 5.42, 5.48, 5.50, 5.52, 5.54, 5.56, 5.60, 5.72, 5.76, 5.82.

Chapter 6 Chemical Equilibrium 6.2, 6.6, 6.8, 6.10, 6.12, 6.14, 6.18, 6.22, 6.26, 6.28, 6.30, 6.34, 6.40, 6.42, 6.44, 6.46.

Chapter 7 Electrochemistry 7.2, 7.4, 7.6, 7.8, 7.10, 7.12, 7.16, 7.18, 7.20, 7.22, 7.26, 7.28, 7.32, 7.34, 7.36, 7.40, 7.44.

\* Schedule of reading assignments and homework will be given during lectures.

Additional Notes:

Prerequisite: course 2C, Mathematics 16C or 21C, one year of college level physics.

Learning Goals:

It is expected that students will be able to learn and apply physical chemistry concepts to biological problems. This includes thermodynamics of biochemical reactions, binding interactions, and ion/metabolite transport; electrochemistry with respect to biochemistry in energy production; properties of solutions and acid-base chemistry. The student should be able to determine if a biochemical reaction is spontaneous under the specific conditions and calculate such thermodynamic properties like Enthalpy, Entropy, free Energy, and equilibrium constant.