CH301/302 Topics

Topics:
Generally we all agreed that the first semester we would start with atoms and move up.

301:
- Electronic structure and periodic trends
- Classical bonding, VSEPR, and LEWIS Dot structures
- QM bonding, VB and MO theories
- Intermolecular forces, gases, liquids, solids (here being brief and moving equilibria and phase transitions to 302)
- Thermodynamics (1st Law, 2nd Law, Free Energy, Thermochemistry)

302:
- Physical Equilibria
- Chemical Equilibria
- Acid/Bases
- Solution Equilibria
- Electrochemistry
- Kinetics
- Topics that bring it all together

Using the Zumdahl text to teach topics in this order:
The chapters are fairly self contained and thus we would need to provide some context in the lecture to tie the subject material together.

General Order (described more fully below):
12, 13, 14, 5, 16, 9, 10, 17, 6, 7, 8, 11, 15, 18, 19, 20

301:
- Unit 1 Quantum Mechanics and the Atom
  - Chapter 12
- Unit 2 Bonding
  - Chapter 13
  - Chapter 14
- Unit 3 Gases, Liquids, Solids
  - Chapter 5
  - Chapter 16
- Unit 4 Thermodynamics
  - Chapter 9
  - Chapter 10

302:
- Unit 1 Physical and Chemical Equilibria
  - Chapter 17 (some of chapter 16)
  - Chapter 6

- Unit 2 Acids and Bases and Solution Equilibria
  - Chapter 7
  - Chapter 8
- Unit 3 Electrochemistry & Kinetics
  - Chapter 11
  - Chapter 15
- Unit 4 Tying it all Together
  - Chapters 18, 19, 20, 21, 22 as you see fit.

These "units" are not necessarily all equal, but they could be. For example there is substantially more to cover in thermodynamics than is gases, liquids, solids. Also, we could begin with an introduction similar to the "tying it all together" in the end to discuss/review basic concepts. Similarly, electrochemistry and kinetics may warrant a bit more time than the last 302 unit, but that could easily vary with instructor or "team".