CHEMISTRY 102A/102C
SPRING 2014 ASSIGNMENTS

WEEK 1
(January 21-24)

Lecture: Tuesday  
Discussion: Wednesday
Topics: Introduction, Classification of Matter, Significant Figures
Reading: Zumdahl*, Chapter 1.1-1.2, 1.5, 1.10, Appendix A1.1
Course Policy (accessed on our Chem 102B/102C website)
Problems: Zumdahl, Chapter 1: 17, 19, 26, 29, 31, 79, 81, 83, 85-87, 96
Review Questions: Zumdahl, Chapter 1: 1, 9

Lecture: Thursday  
Discussion: Friday
Topics: Measurements - Units, Significant Figures, Dimensional Analysis, Density, Dalton’s Atomic Theory
Reading: Zumdahl, Chapter 1.3-1.7, 1.9; 2.1-2.4
Problems: Zumdahl, Chapter 1: 21-23, 33-36, 37(a,b,e,f), 41, 42, 51, 54, 56, 69-72, 77, 98, 99
          Chapter 2: 41, 42
Review Questions: Zumdahl, Chapter 1: 5-7
          Chapter 2: 1(a,b)

WEEK 2
(January 27-31)

Lecture: Tuesday  
Discussion: Wednesday
Topics: Subatomic Particles, Isotopes, Nomenclature, Periodic Table
Reading: Zumdahl, Chapter 2.4-2.8
Problems: Zumdahl, Chapter 2: 21-25, 28, 29, 31, 32, 53, 56, 57, 61, 65, 67, 69, 71-78, 80, 85, 87, 92, 93, 97-100, 114, 115
Review Questions: Zumdahl, Chapter 2: 4-10

Lecture: Thursday  
Discussion: Friday
Reading: Zumdahl, Chapter 3.1-3.5, 3.8-3.9; Handouts Book, p. 41
Problems: Zumdahl, Chapter 3: 25, 37, 39, 45, 46, 65, 67, 77, 96, 101, 102, 129, 130, 135, 140
          Zumdahl, Chapter 6: 43, 45(a,b)
Review Questions: Zumdahl, Chapter 3: 1-4

*Chemistry by Zumdahl & Zumdahl (Ninth Edition)
WEEK 3
(February 3-7)

Lecture: Tuesday  
Topics: Electromagnetic Radiation, Atomic Spectra, The Bohr Model, The Quantum Mechanical Model

Discussion: Wednesday
Reading: Zumdahl, Chapter 7.1-7.5
Problems: Zumdahl, Chapter 7: 20, 23, 24, 34, 45-48, 57c, 59, 64, 65, 67, 139-141
Review Questions: Zumdahl, Chapter 7: 1-3

Lecture: Thursday
Topics: Orbitals and Electronic Structure, The Periodic Table

Discussion: Friday
Reading: Zumdahl, Chapter 7.7-7.11
Problems: Zumdahl, Chapter 7: 28, 35, 76, 80, 83, 84, 87, 89, 91, 93, 98-102, 132, 145, 148
Chapter 8: 46
Handouts Book, p. 60: Ion configuration problems at bottom of the page.
Review Questions: Zumdahl, Chapter 7: 6-8

WEEK 4
(February 10-14)

Lecture: Tuesday  
Topics: Periodic Properties

Discussion: Wednesday
Reading: Zumdahl, Chapter 7.12-7.13, 8.4
Problems: Zumdahl, Chapter 7: 30, 31, 105, 107, 109, 110, 112-115, 120, 125, 149, 150
Chapter 8: 21, 41, 51-53, 127
Review Questions: Zumdahl, Chapter 7: 9, 10
Chapter 8: 2

Lecture: Thursday
Topics: Introduction to Bonding, Lewis Structures, Nonoctets, Resonance

Discussion: Friday
Reading: Zumdahl, Chapter 8.1-8.3, 8.9-8.12
Problems: Zumdahl, Chapter 8: 16, 17, 19, 24, 27, 33-35, 37, 38, 43, 48, 81-91, 94, 97, 107, 131, 134
Handouts Book, p. 69: Complete the Lewis structures for the organic compounds listed on the bottom of this page.
Review Questions: Zumdahl, Chapter 8: 1, 5, 6
## WEEK 5
(February 17-21)

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<thead>
<tr>
<th>Lecture: Tuesday</th>
<th>Discussion: Wednesday</th>
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<tbody>
<tr>
<td>Topics:</td>
<td>VSEPR, Polarity</td>
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<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 8.2, 8.3, 8.13</td>
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<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 8: 15, 20, 26, 39, 40, 111-121, 123-126, 157</td>
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<td>Review Questions:</td>
<td>Zumdahl, Chapter 8: 8-10</td>
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<tr>
<th>Lecture: Thursday</th>
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<tbody>
<tr>
<td>Topics:</td>
<td>Hybrid Orbitals, Delocalization</td>
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<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 9.1, 9.5</td>
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<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 9: 6, 9, 11, 12, 16-22, 27, 28, 31, 39, 61, 66, 67, 87, 100</td>
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<tr>
<td>Review Questions:</td>
<td>Zumdahl, Chapter 9: 1-4, 10</td>
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## WEEK 6
(February 24-28)

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<thead>
<tr>
<th>Lecture: Tuesday</th>
<th>Discussion: Wednesday</th>
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<tbody>
<tr>
<td>Topics:</td>
<td>Catch-up and Review for Hour Exam I</td>
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<tr>
<td>Hour Exam I:</td>
<td>7:00 p.m. Wednesday, February 26 (location to be announced.)</td>
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<th>Lecture: Thursday</th>
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<tr>
<td>Topics:</td>
<td>States of Matter, Intermolecular Forces and Physical Properties</td>
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<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 10.1-10.2, 10.8 (vapor pressure discussion only)</td>
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<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 10: 5, 10-14, 21, 27, 35, 37, 39-41, 111, 132</td>
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<td>Review Questions:</td>
<td>Zumdahl, Chapter 10: 1</td>
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WEEK 7
(March 3-7)

**Lecture: Tuesday**
Topics: Formula Calculations - Percent Composition, Empirical and Molecular Formulas

**Discussion: Wednesday**

Reading: Zumdahl, Chapter 3.6-3.7

Problems: Zumdahl, Chapter 3: 27, 28, 79-82, 86, 89, 90, 93, 94, 137, 139, 143, 175
Review Questions: Zumdahl, Chapter 3: 5, 6

**Lecture: Thursday**
Topics: Chemical Reactions, Stoichiometry - Mole and Mass Relations, Limiting Reagents

Reading: Zumdahl, Chapter 3.8-3.11

Problems: Zumdahl, Chapter 3: 30, 33, 34, 106, 113, 115-117, 121, 124-126, 147, 164, 181
Review Questions: Zumdahl, Chapter 3: 7-10

WEEK 8
(March 10-14)

**Lecture: Tuesday**
Topics: Solutions: Concentration Units, Electrolytes, Reactions in Solution

Reading: Zumdahl, Chapter 4.1-4.6

Problems: Zumdahl, Chapter 4: 13, 15-19, 24, 29, 31, 33, 34, 37, 39, 43, 45, 47, 49-51, 53, 66*, 67*, 92
Review Questions: Zumdahl, Chapter 4: 1-7

*For Exercises 4.66 and 4.67, only give the balanced formula equations.

**Lecture: Thursday**
Topics: Solution Stoichiometry

Reading: Zumdahl, Chapter 4.7-4.8

Problems: Zumdahl, Chapter 4: 20, 56, 57, 61, 63, 74, 75, 77, 95, 103, 105, 106, 133, 136, 137
Review Questions: Zumdahl, Chapter 4: 8
### WEEK 9  
(March 17-21)

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<th><strong>Lecture: Tuesday</strong></th>
<th><strong>Discussion: Wednesday</strong></th>
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<tr>
<td><strong>Topics:</strong> Gases - P, V, T Relationships, Ideal Gas Law, Stoichiometry, Partial Pressures</td>
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<tr>
<td>Tuesday</td>
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**Reading:**  
Zumdahl, Chapter 5.1-5.5, Appendix A1.3

**Problems:**  
Zumdahl, Chapter 5: 23-26, 28, 31, 43, 46, 54, 55, 57, 60, 67, 73, 77-79, 81, 82, 85, 91, 93, 123, 124, 134

**Review Questions:**  
Zumdahl, Chapter 5: 1-5

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<th><strong>Lecture: Thursday</strong></th>
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<tr>
<td><strong>Topics:</strong> Kinetic Molecular Theory, Real Gases</td>
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**Lecture: Thursday**  
**Discussion: Friday**

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**Reading:**  
Zumdahl, Chapter 5.6-5.9

**Problems:**  
Zumdahl, Chapter 5: 29, 32-34, 105-107, 109-112, 114

**Review Questions:**  
Zumdahl, Chapter 5: 6-10

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**SPRING BREAK, March 24-28**

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### WEEK 10  
(March 31-April 4)

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<th><strong>Lecture: Tuesday</strong></th>
<th><strong>Discussion: Wednesday</strong></th>
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<tbody>
<tr>
<td><strong>Topics:</strong> Catch-up and Review for Hour Exam II</td>
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**Hour Exam II:**  
7:00 p.m. Wednesday, April 2 (Location to be announced.)

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<th><strong>Lecture: Thursday</strong></th>
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<td><strong>Topics:</strong> Chemical Equilibrium</td>
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**Lecture: Thursday**  
**Discussion: Friday**

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<td>Thursday</td>
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**Reading:**  
Zumdahl, Chapter 13.1-13.4

**Problems:**  
Zumdahl, Chapter 13: 11-14, 21, 23, 25, 27, 29, 33, 35, 37, 38, 43, 44

**Review Questions:**  
Zumdahl, Chapter 13: 1-5
WEEK 11
(April 7-11)

**Lecture: Tuesday**
Topics: Reaction Quotient, Equilibrium Calculations, LeChatelier's Principle

**Discussion: Wednesday**

Reading: Zumdahl, Chapter 13.5-13.7

Problems: Zumdahl, Chapter 13: 15-17, 19, 20, 28, 39, 41, 47-49, 51, 57, 59, 61, 63, 64, 67-69, 80, 82, 83

Review Questions: Zumdahl, Chapter 13: 6-10

**Lecture: Thursday**
Topics: Introduction to Thermodynamics, Heat, Work, Internal Energy, First Law

**Discussion: Friday**

Reading: Zumdahl, Chapter 6.1-6.2

Problems: Zumdahl, Chapter 6: 11, 13, 31-36, 41-43, 45, 48-50, 97, 99, 100, 124, 130

Review Questions: Zumdahl, Chapter 6: 1-4

WEEK 12
(April 14-18)

**Lecture: Tuesday**
Topics: Enthalpy, Calorimetry, Hess’s Law, Standard Enthalpies of Formation

**Discussion: Wednesday**

Reading: Zumdahl, Chapter 6.2-6.6

Problems: Zumdahl, Chapter 6: 18, 19, 21, 51, 52, 56, 57, 59, 61, 64, 66, 67, 71, 72, 75, 76, 78, 79, 83, 85, 86, 112

Review Questions: Zumdahl, Chapter 6: 5-9

**Lecture: Thursday**
Topics: Bond Energies, Heating Curves, Entropy

**Discussion: Friday**

Reading: Zumdahl, Chapter 8.8, 10.8 (p. 488), 17.1-17.4

Problems: Zumdahl, Chapter 8: 23, 65, 67, 68, 70, 71, 73, 75, 76
Zumdahl, Chapter 10: 23, 24, 95, 96, 99, 100
Zumdahl, Chapter 17: 11, 17, 25, 31-33, 41, 42, 82

Review Questions: Zumdahl, Chapter 8: 4; Chapter 17: 1-3
WEEK 13
(April 21-25)

Lecture: Tuesday
Topics: Free Energy

Discussion: Wednesday

Reading: Zumdahl, Chapter 17.4-17.6

Problems: Zumdahl, Chapter 17: 34-36, 38-40, 43-45, 48-51, 54, 57, 59, 62, 63, 81

Review Questions: Zumdahl, Chapter 17: 4-6

Lecture: Thursday
Topics: Free Energy and Equilibrium

Discussion: Friday

Reading: Zumdahl, Chapter 17.7-17.9

Problems: Zumdahl, Chapter 17: 22-24, 66, 67, 70, 71, 73, 76-80, 86, 87, 89, 90, 93

Review Questions: Zumdahl, Chapter 17: 7, 8, 10

WEEK 14
(April 28-May 2)

Lecture: Tuesday
Topics: Catch-up and Review for Hour Exam III

Discussion: Wednesday

HOUR EXAM III: 7:00 PM Wednesday, April 30 (Location to be announced.)

Lecture: Thursday
Topics: Oxidation-Reduction Reactions; Review for Final

Discussion: Friday

Reading: Zumdahl, Chapter 4.9, 18.1

Problems: Zumdahl, Chapter 4: 21, 79, 81, 83, 108
Zumdahl, Chapter 18: 20, 29

Review Questions: Zumdahl, Chapter 4: 9
Zumdahl, Chapter 18: 1
WEEK 15
(May 5-7)

Lecture: Tuesday
Discussion: Wednesday

Topics: Catch-up and Review for Final

FINAL EXAM for CHEM 102A: 1:30-4:30 p.m. Tuesday, May 13
FINAL EXAM for CHEM 102C: 1:30-4:30 p.m. Monday, May 12