CHEMISTRY 102B/102C/102E
ASSIGNMENTS

WEEK 1
(August 28-31)

**Lecture: Tuesday**
Topics: Introduction, Classification of Matter, Significant Figures
Reading: Zumdahl*, Chapter 1.1-1.2, 1.5, 1.9, Appendix A1.1
Course Policy (accessed on our Chem 102B/102C/102E website)
Problems: Zumdahl, Chapter 1: 19, 21, 28, 31, 33, 73, 75, 77, 79-81, 91
Review Questions: Zumdahl, Chapter 1: 1, 9

**Lecture: Thursday**
Topics: Measurements - Units, Significant Figures, Dimensional Analysis, Density, Dalton’s Atomic Theory
Reading: Zumdahl, Chapter 1.3-1.6, 1.8; 2.1-2.4
Problems: Zumdahl, Chapter 1: 23-25, 35, 36, 37(a,b,e,f), 41, 42, 49-52, 63-66, 71, 87, 98, 99
Chapter 2: 20, 33
Review Questions: Zumdahl, Chapter 1: 4-7
Chapter 2: 1(a,b)

WEEK 2
(September 4-7)

**Lecture: Tuesday**
Topics: Subatomic Particles, Isotopes, Nomenclature, Periodic Table
Reading: Zumdahl, Chapter 2.4-2.8
Review Questions: Zumdahl, Chapter 2: 4-10

**Lecture: Thursday**
Reading: Zumdahl, Chapter 3.1-3.5, 3.8-3.9; Handouts Book, p. 35
Problems: Zumdahl, Chapter 3: 25, 33, 35, 41, 42, 61, 63, 71, 90, 95, 96, 119, 121, 131, 138
Zumdahl, Chapter 6: 41, 43(a,b)
Review Questions: Zumdahl, Chapter 3: 1-4

*Chemistry by Zumdahl & Zumdahl (Eighth Edition)*
WEEK 3  
(September 11-14)

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

Reading: Zumdahl, Chapter 7.1-7.5
Problems: Zumdahl, Chapter 7: 20, 23, 32, 41-44, 53, 55, 60, 61, 63, 137-139
Review Questions: Zumdahl, Chapter 7: 1-3

**Discussion: Wednesday**

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

Reading: Zumdahl, Chapter 7.7-7.11
Problems: Zumdahl, Chapter 7: 26, 33, 68, 72, 74, 77, 78, 81, 83, 85, 87, 92-96, 124, 146
Chapter 8: 44
Handouts Book, p. 54: Ion configuration problems at bottom of the page.
Review Questions: Zumdahl, Chapter 7: 6-8

**Discussion: Friday**

WEEK 4  
(September 18-21)

**Lecture: Tuesday**  
Topics: Periodic Properties

Reading: Zumdahl, Chapter 7.12-7.13, 8.4
Chapter 8: 21, 39, 49-51, 129
Review Questions: Zumdahl, Chapter 7: 9, 10
Chapter 8: 2

**Discussion: Wednesday**

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

Reading: Zumdahl, Chapter 8.1-8.3, 8.9-8.12
Problems: Zumdahl, Chapter 8: 15-17, 19, 24, 27, 33-35, 37, 38, 41, 46, 79-89, 92, 93, 133, 136
Handouts Book, p. 61: Complete the Lewis structures for the organic compounds listed on the bottom of this page.
Review Questions: Zumdahl, Chapter 8: 1, 5, 6

**Discussion: Friday**
WEEK 5
(September 25-28)

Lecture: Tuesday
Topics: VSEPR, Polarity
Reading: Zumdahl, Chapter 8.2, 8.3, 8.13
Problems: Zumdahl, Chapter 8: 20, 26, 105-115, 117-120, 127, 151
Review Questions: Zumdahl, Chapter 8: 8-10

Discussion: Wednesday

Lecture: Thursday
Topics: Hybrid Orbitals, Delocalization
Reading: Zumdahl, Chapter 9.1, 9.5
Problems: Zumdahl, Chapter 9: 6, 9, 11, 12, 16-22, 27, 28, 31, 57, 59, 61, 64, 79
Review Questions: Zumdahl, Chapter 9: 1-4, 10

Discussion: Friday

Lecture: Friday

WEEK 6
(October 2-5)

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

Hour Exam I: 7:00 p.m. Wednesday, October 3 (location to be announced.)

Discussion: Wednesday

Lecture: Thursday
Topics: States of Matter, Intermolecular Forces and Physical Properties
Reading: Zumdahl, Chapter 10.1-10.2, 10.8 (vapor pressure discussion only)
Problems: Zumdahl, Chapter 10: 5, 10-14, 21, 25, 33, 35-39, 117, 128
Review Questions: Zumdahl, Chapter 10: 1

Discussion: Friday
### WEEK 7  
(October 9-12)

<table>
<thead>
<tr>
<th><strong>Lecture: Tuesday</strong></th>
<th><strong>Discussion: Wednesday</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics:</td>
<td>Formula Calculations - Percent Composition, Empirical and Molecular Formulas</td>
</tr>
<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 3.6-3.7</td>
</tr>
<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 3: 26, 73-76, 80, 83, 84, 87, 88, 135, 137, 141, 163</td>
</tr>
<tr>
<td>Review Questions:</td>
<td>Zumdahl, Chapter 3: 5, 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Lecture: Thursday</strong></th>
<th><strong>Discussion: Friday</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics:</td>
<td>Chemical Reactions, Stoichiometry - Mole and Mass Relations, Limiting Reagents</td>
</tr>
<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 3.8-3.11</td>
</tr>
<tr>
<td>Review Questions:</td>
<td>Zumdahl, Chapter 3: 7-10</td>
</tr>
</tbody>
</table>

### WEEK 8  
(October 16-19)

<table>
<thead>
<tr>
<th><strong>Lecture: Tuesday</strong></th>
<th><strong>Discussion: Wednesday</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics:</td>
<td>Solutions: Concentration Units, Electrolytes, Reactions in Solution</td>
</tr>
<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 4.1-4.6</td>
</tr>
<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 4: 13, 15-19, 24, 29, 31, 33, 34, 37, 39, 43, 45, 47, 49-51, 53, 66*, 67*, 100</td>
</tr>
<tr>
<td>Review Questions:</td>
<td>Zumdahl, Chapter 4: 1-7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th><strong>Lecture: Thursday</strong></th>
<th><strong>Discussion: Friday</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics:</td>
<td>Solution Stoichiometry</td>
</tr>
<tr>
<td>Reading:</td>
<td>Zumdahl, Chapter 4.7-4.8</td>
</tr>
<tr>
<td>Problems:</td>
<td>Zumdahl, Chapter 4: 20, 56, 57, 61, 63, 74, 75, 77, 93, 94, 97, 103, 109, 125, 128, 129</td>
</tr>
<tr>
<td>Review Questions:</td>
<td>Zumdahl, Chapter 4: 8</td>
</tr>
</tbody>
</table>
## WEEK 9  
(October 23-26)

**Lecture: Tuesday**  
Topics: Gases - P, V, T Relationships, Ideal Gas Law, Stoichiometry, Partial Pressures

**Discussion: Wednesday**

Reading: Zumdahl, Chapter 5.1-5.5, Appendix A1.3

Problems: Zumdahl, Chapter 5: 23-26, 29, 41, 44, 48, 53, 55, 56, 65, 71, 75-77, 80, 81, 87, 89, 123, 124, 130

Review Questions: Zumdahl, Chapter 5: 1-5

**Lecture: Thursday**
Topics: Kinetic Molecular Theory, Real Gases

**Discussion: Friday**

Reading: Zumdahl, Chapter 5.6-5.9

Problems: Zumdahl, Chapter 5: 27, 30-32, 99, 101-104, 106

Review Questions: Zumdahl, Chapter 5: 6-10

## WEEK 10  
(October 30-Nov 2)

**Lecture: Tuesday**
Topics: Chemical Equilibrium

**Discussion: Wednesday**

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

**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, 90, 92, 93

Review Questions: Zumdahl, Chapter 13: 6-10
WEEK 11  
(November 6-9)

**Lecture:** Tuesday  
Topics: Catch up and Review for Hour Exam II

**Discussion:** Wednesday

**Topics:**  
Catch up and Review for Hour Exam II

**HOUR EXAM II:** 7:00 pm Wednesday, November 7 (Location to be announced.)

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

**Discussion:** Friday

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

**Reading:**  
Zumdahl, Chapter 6: 6.1-6.2

**Problems:**  
Zumdahl, Chapter 6: 11, 13, 30-34, 39-41, 43, 46-48, 98, 101, 102, 116, 122

**Review Questions:**  
Zumdahl, Chapter 6: 1-4

WEEK 12  
(November 13-16)

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

**Discussion:** Wednesday

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

**Reading:**  
Zumdahl, Chapter 6: 6.2-6.6

**Problems:**  
Zumdahl, Chapter 6: 17-20, 49, 50, 54, 55, 59, 62, 64, 65, 69-71, 73, 74, 76, 78, 81, 83, 84, 96, 114

**Review Questions:**  
Zumdahl, Chapter 6: 5-9

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

**Discussion:** Friday

**Topics:**  
Bond Energies, Entropy

**Reading:**  
Zumdahl, Chapter 8.8: 17.1-17.4

**Problems:**  
Zumdahl, Chapter 8: 23, 63, 65, 66, 68, 69, 71, 73, 74  
Zundahl, Chapter 17: 11, 16, 23, 27-29, 37, 38, 73, 84

**Review Questions:**  
Zumdahl, Chapter 8: 4;  Chapter 17: 1-3

******************************************************************************

THANKSGIVING BREAK, NOVEMBER 19-23

******************************************************************************
WEEK 13
(November 27-30)

Lecture: Tuesday
Topics: Free Energy
Reading: Zumdahl, Chapter 17: 17.4-17.6
Problems: Zumdahl, Chapter 17: 30-32, 34-36, 39-41, 44-47, 50, 54, 55, 58, 75, 83
Review Questions: Zumdahl, Chapter 17: 4-6

Lecture: Thursday
Topics: Free Energy and Equilibrium
Reading: Zumdahl, Chapter 17: 17.7-17.9
Problems: Zumdahl, Chapter 17: 20-22, 60, 61, 64, 65, 67, 69, 70, 77, 78, 80, 88-90, 93, 100
Review Questions: Zumdahl, Chapter 17: 7, 8, 10

WEEK 14
(December 4-7)

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

HOUR EXAM III: 7:00 PM Wednesday, 12/5 (Location to be announced.)

Lecture: Thursday
Topics: Oxidation-Reduction Reactions; Review for Final
Reading: Zumdahl, Chapter 4.9, 18.1
Problems: Zumdahl, Chapter 4: 21, 79, 81, 83, 112
Zumdahl, Chapter 18: 20, 29
Review Questions: Zumdahl, Chapter 4: 9
Zumdahl, Chapter 18: 1
WEEK 15
(December 11-12)

Lecture: Tuesday
Discussion: Wednesday

Topics: Catch-up and Review for Final

FINAL EXAM for CHEM 102B: 7:00-10:00 pm Monday, December 17
FINAL EXAM for CHEM 102C: 1:30-4:30 pm Wednesday, December 19
FINAL EXAM for CHEM 102E: 1:30-4:30 pm Monday, December 17