CHEMISTRY 102A
SPRING 2021 ASSIGNMENTS

WEEK 1
(January 25-29)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 0: Course Policy; Lecture 1: Classification of Matter

Reading: Zumdahl*, Chapter R.3, R.8, 1.1-1.2, Appendix A1.1
Course Policy (accessed on our Chem 102A website)

Problems: Zumdahl, Chapter R: 11, 17, 19, 67, 69, 71, 74, 75
Chapter 1: 11, 13

Review Questions: Zumdahl, Chapter 1: 1

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 2: Units, Significant Figures, Dimensional Analysis, Density

Reading: Zumdahl, Chapter R.1-R.5, R.7, 1.3-1.5

Problems: Zumdahl, Chapter R: 2, 3, 5, 6, 8, 21, 23, 24, 25 (a,b,e,f), 30 (a,c,d), 42, 57, 60, 65, 84, 86, 87
Chapter 1: 18, 33, 34

Review Questions: Zumdahl, Chapter 1: 3(a,b)

WEEK 2
(February 1-5)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 3: Dalton, Rutherford, Nomenclature, Periodic Table

Reading: Zumdahl, Chapter 1.5-1.7, 3.12

Problems: Zumdahl, Chapter 1: 19, 21, 23, 43, 45, 51, 54, 56
Chapter 3: 22, 30, 43, 105, 107, 110, 112, 119, 121, 132, 134

Review Questions: Zumdahl, Chapter 1: 6-8
Chpater 3 : 2, 10,11

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 4: The Mole, Chemical Reactions, Enthalpy

Reading: Zumdahl, Chapter 5.1-5.5, 5.8-5.9

Problems: Zumdahl, Chapter 5: 37, 39, 64, 65, 67, 77, 96, 102, 129, 136, 140
Chapter 7: 43, 45(a,b)

Review Questions: Zumdahl, Chapter 5: 1-4

***Chemistry-An Atoms First Approach by Zumdahl & Zumdahl (2nd Edition)**

WEEK 3
(February 8-12)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 5: Electromagnetic Radiation, Bohr Model

Reading: Zumdahl, Chapter 2.1-2.5

Problems: Zumdahl, Chapter 2: 20, 24, 45, 48, 61, 62, 64, 65, 67, 138, 139

Review Questions: Zumdahl, Chapter 2: 1-3

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 6: Orbitals, Electron Configurations

Reading: Zumdahl, Chapter 2.6-2.11

Problems: Zumdahl, Chapter 2: 28, 76, 80, 83, 84, 91, 93, 95, 100-103, 144
Chapter 3: 50
Extra Problems: Ion configuration problems at bottom of Electron Configurations Exceptions Handout (on Lon Capa)

Review Questions: Zumdahl, Chapter 2: 6-8

WEEK 4
(February 15-19)

Lecture: Tuesday **Discussion: Wednesday**

Topics: Catch-up and Review

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 7: Periodic Properties

Reading: Zumdahl, Chapter 2.12-2.13, 3.3

Problems: Zumdahl, Chapter 2: 107, 109, 112, 115-117, 127, 145, 146
Chapter 3: 24, 45, 56, 123

Review Questions: Zumdahl, Chapter 2: 9, 10
Chapter 3: 3

WEEK 5
(February 22-26)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 8: Introduction to Bonding, Lewis Structures, Non-octets, Resonance

Reading: Zumdahl, Chapter 3.1-3.2, 3.8-3.11

Problems: Zumdahl, Chapter 3: 19, 31, 38, 39, 41, 42, 52, 82, 83, 85-89, 92, 95, 101, 129

Extra Problems: Complete the Lewis structures for the organic compounds listed at end of General Procedure for Drawing Lewis Structures handout (on Lon Capa).

Review Questions: Zumdahl, Chapter 3: 1, 6-8

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 9: Formal Charge, VSEPR, Polarity

Reading: Zumdahl, Chapter 4.1, 4.2,

Problems: Zumdahl, Chapter 4: 10, 21, 22, 27, 28, 31-33, 36-38

Review Questions: Zumdahl, Chapter 4: 1-3

WEEK 6
(March 1-5)

Lecture: Tuesday **Discussion: Wednesday**

Topics: Review for Hour Exam I

Hour Exam I: 7:00 p.m. Wednesday, March 3

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 10: Hybrid Orbitals, Delocalization

Reading: Zumdahl, Chapter 4.3, 4.7

Problems: Zumdahl, Chapter 4: 6, 11, 13, 15, 16, 43, 44, 47, 48, 51, 59, 81, 84, 113

Review Questions: Zumdahl, Chapter 4: 4-6, 12

WEEK 7
(March 8-12)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 11: States of Matter, Intermolecular Forces and Physical Properties

Reading: Zumdahl, Chapter 9.1-9.2, 9.8 (vapor pressure discussion only)

Problems: Zumdahl, Chapter 9: 12-14, 21, 27, 35, 37, 39, 41, 111, 132

Review Questions: Zumdahl, Chapter 9: 1

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 12: Empirical and Molecular Formulas

Reading: Zumdahl, Chapter 5.6-5.7

Problems: Zumdahl, Chapter 5: 27, 28, 81, 82, 86, 89, 92, 93, 137, 143, 175

Review Questions: Zumdahl, Chapter 5: 5, 6

WEEK 8
(March 15-19)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 13: Chemical Reactions, Stoichiometry, Limiting Reactants

Reading: Zumdahl, Chapter 5.8-5.11

Problems: Zumdahl, Chapter 5: 33, 34, 106, 113, 116, 121, 124-126, 181

Review Questions: Zumdahl, Chapter 5: 7-10

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 14: Electrolytes, Reactions in Solution

Reading: Zumdahl, Chapter 6.1-6.6, 6.8

Problems: Zumdahl, Chapter 6: 13, 17, 26, 33, 36, 39, 41, 45, 47, 49, 52, 55, 68*, 69*, 94

Review Questions: Zumdahl, Chapter 6: 1-7

*For Exercises 6.68 and 6.69, only give the balanced formula equations.

WEEK 9
(March 22-26)

Lecture: Tuesday **Discussion: Wednesday**

Topic: Catch-up and Review

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 15: Solution Stoichiometry

Reading: Zumdahl, Chapter 6.7-6.8

Problems: Zumdahl, Chapter 6: 58, 62, 63, 76, 79, 97, 108, 109, 135, 138, 139

Review Questions: Zumdahl, Chapter 6: 8

WEEK 10
(March 29-April 2)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 16: Ideal Gas Law, Stoichiometry, Partial Pressures

Reading: Zumdahl, Chapter 8.1-8.5, Appendix A1.3

Problems: Zumdahl, Chapter 8: 23, 26, 28, 31, 46, 54, 55, 60, 67, 78, 79, 81, 85, 91, 124, 134

Review Questions: Zumdahl, Chapter 8: 1-5

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 17: Kinetic Molecular Theory, Real Gases

Reading: Zumdahl, Chapter 8.6-8.9

Problems: Zumdahl, Chapter 8: 29, 32-35, 107, 110, 111, 114

Review Questions: Zumdahl, Chapter 8: 6-10

WEEK 11
(April 5-9)

Lecture: Tuesday **Discussion: Wednesday**

Topics: Review for Hour Exam II

Hour Exam II: 7:00 p.m. Wednesday, April 7

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 18: Chemical Equilibrium;
Lecture 19: Equilibrium Calculations, LeChatelier's Principle

Reading: Zumdahl, Chapter 12.1-12.4

Problems: Zumdahl, Chapter 12: 11, 13, 14, 21, 23, 25, 28, 29, 33, 35, 37, 38, 43

Review Questions: Zumdahl, Chapter 12: 1-5

WEEK 12
(April 12-16)

Discussion: Wednesday

Topics: Equilibrium Calculations, LeChatelier's Principle

Reading: Zumdahl, Chapter 12.5-12.7

Problems: Zumdahl, Chapter 12: 15, 16, 20, 39, 41, 47, 49, 51, 57, 59-61, 63, 67-69, 80, 82, 83

Review Questions: Zumdahl, Chapter 12: 6-10

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lecture 20: Solubility Equilibrium, Common Ion Effect

Reading: Zunmdahl, Chapter 15.1

Problems: Zumdahl, Chapter 15: 8, 11, 13, 19, 22, 25, 30, 36, 39, 40, 43, 83

Review Questions: Zumdahl, Chapter 15: 1-3

Note: We will skip Lecture 21 material this Spring 2021 semester.

WEEK 13
(April 19-23)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 22: Introduction to Thermodynamics, Heat, Work, Internal Energy

Reading: Zumdahl, Chapter 7.1-7.2

Problems:
Zumdahl, Chapter 7: 12, 13, 32-34, 41-43, 46, 93, 96, 122, 123
Zumdahl, Chapter 8: 141,163
Zumdahl, Chapter16: 103

Review Questions: Zumdahl, Chapter 7: 1-4

Lecture: Thursday **Discussion: Friday**

Lecture/Topics: Lectures 23A and 23B: Enthalpy, Calorimetry, Hess's Law, Standard Enthalpies of Formation

Reading: Zumdahl, Chapter 7.3-7.7

Problems:
Zumdahl, Chapter 7: 18, 19, 21, 49, 50, 54, 55, 60, 63, 65, 70, 73, 76, 77, 84, 108, 110
Zumdahl, Chapter 16: 104

Review Questions: Zumdahl, Chapter 7: 5-9

WEEK 14
(April 26-30)

Lecture: Tuesday **Discussion: Wednesday**

Lecture/Topics: Lecture 24: Bond Energies, Heating Curves

Reading: Zumdahl, Chapter 3.7, Figure 9-41 (p. 401)

Problems:
Zumdahl, Chapter 3: 26, 69, 72, 75, 77
Zumdahl, Chapter 7: 112,113
Zumdahl, Chapter 9: 23, 95, 96, 99, 101, 118

Review Questions: Zumdahl, Chapter 3: 5

Lecture: Thursday **Discussion: Friday**

Topics: Review for Hour Exam III

HOUR EXAM III: 7:00 p.m. Monday, May 3

WEEK 15
(May 4-5)

Lecture: Tuesday **Discussion: Wednesday**

Topics: Review for Final

FINAL EXAM for CHEM 102A: To Be Announced