

Instructor: Jack Duff, MS **Office:** E-232 **Tel:** (678) 915-3603 **e-mail:** jduff@spsu.edu
Office Hours: M, W, F 10:00-11:00 Tu, Th 10:30-12:00 M 1:00-2:00

Required Texts:

Chemistry (7th Ed.), Zumdahl, Houghton Mifflin Co., Boston / New York
Experiments in General Chemistry, 2nd ed., Duff and Gabrielli, Tavenner Publishing, Anderson, SC

Description:

This is the first course in a two-semester sequence covering the fundamental principles and applications of chemistry designed for science majors. Laboratory exercises compliment and supplement the lecture material.

Student learning outcomes will be:

1. understand the general properties and structure of matter including dimensional analysis with proper attention to units and significant figures.
2. name and classify inorganic compounds.
3. understand and use the mole concept and mass-mole relationship
4. balance chemical equations
5. identify different types of reactions (precipitation, neutralization, oxidation-reduction) and predict the outcome of these reactions.
6. apply gas laws and kinetic molecular theory to processes involving gases.
7. understand the first law of thermodynamics and the role of energy and enthalpy in chemical reactions and perform thermochemical calculations.
8. understand the basic concepts of quantum theory, determine the electron configurations of atoms, and use periodic trends to make predictions about atomic properties.
9. use Lewis structures, determine the molecular geometry of molecules using VSEPR theory, and learn bonding theory, including hybridization

Attendance:

Attendance in lecture is expected but not required. You are responsible for any material covered in class or in assigned readings. **Laboratory attendance is required. You must pass the lab to pass the course.** Students who pass the lab with a grade of 70% or better may not be required to retake the lab if they repeat the course, subject to permission from the instructor and the department chair. Registration for the course without the lab requires an override available only at the BCP office.

A midterm grade will be posted via Banner prior to the last day to withdraw without academic penalty. This grade will be given as an "S" (satisfactory, 70% or better) or a "U" (unsatisfactory, less than 70%) and will be based only on graded exams, quizzes, and lab experiments, each appropriately weighed according to your syllabus. No grades will be dropped for this estimation and **any reports due but not yet received will be graded as zeros.**

Honesty:

Academic honesty as detailed in the Student Handbook is expected. The use of calculator programs as crib sheets will be considered cheating. The memories of programmable calculators may be cleared before exams. The use of cell phones or any electronic devices other than calculators during exams will be considered cheating.

Cell Phones:

Cell phones must be turned off before you come to class. If you have an urgent need to have yours on, see me before class begins to request an exception be made for you.

Tutoring:

Contact our Dept. office at (678) 915-7215

Grading:

Four Exams 60% (15%/ea) Final Exam 20% Lab 20% Total 100%

All students are required to take the Final Exam. The grade for any one of the four exams that is missed or bombed may be replaced by the Final Exam grade. Thus the Final may count as 35% of your grade.

No make-up exams will be given. The following point scale will be employed. **No extra-credit assignments or additional points will be given.**

A	B	C	D	F
100-90	89-80	79-70	69-60	<60

Students with disabilities who believe that they may need accommodations in this class or laboratory are encouraged to contact the counselor working with disabilities at (770) 528-7226 as soon as possible to ensure that such accommodations are implemented in a timely fashion.

Suggested Homework Problems from Zumdahl, 7th ed:

Chapter 1:

25, 27, 29, 31, 33, 43, 47, 57, 59

Chapter 2:

33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 61, 63, 67, 69,

Chapter 3:

23, 21, 29, 33, 35, 37, 39, 41, 43, 53, 59, 61, 65, 69, 75, 79, 87, 95, 99

Chapter 4:

15, 17, 21, 25, 29, 31, 33, 43, 49, 51, 55, 57, 59, 63, 67

Chapter 5:

21, 23, 25, 27, 29, 31, 33, 35, 39, 43, 49, 51, 59, 61, 63, 65, 67, 77, 79, 85, 103, 111

Chapter 6:

11, 13, 15, 21, 23, 25, 27, 28, 31, 33, 37, 39, 41, 43, 45, 49, 51, 53 (ΔH given is for molar reaction), 57, 59, 61, 65

Chapter 7:

5, 12, 19, 21, 23, 25, 27, 33, 39, 43, 57, 59, 61, 63, 65, 69, 71, 73, 79, 81, 83, 85, 87, 89, 95, 103, 109, 117, 119

Chapter 8:

13, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 39, 41, 43, 47, 51, 61, 63, 65, 67, 71, 73, 77, 79, 81, 83, 85, 87, 89, 91, 95, 99

Chapter 9:

1, 2, 5, 6, 9, 13, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 45, 51

Tentative Syllabus Fall 2008:

(Subject to change. You are responsible for keeping up with changes in subject coverage or exam dates, both of which will be announced in class. If you miss class, contact me regarding changes.)

<u>Subject</u>	<u>Chemistry (7th Ed.), Zumdahl</u>
Chemical Foundations	Ch 1
Atoms, Molecules, and Ions	Ch 2
Stoichiometry	Ch 3

Mon, 9/1, Labor Day Holiday

Thurs, 9/11 Exam I

Types of Chemical reactions and Solution Stoichiometry	Ch 4 (omit 4.10)
Gases	Ch 5

Tues, 10/7 Exam II

Tues, 10/7 is the LAST DAY TO WITHDRAW W/O ACADEMIC PENALTY:

Thermochemistry	Ch 6
Atomic Structure and Periodicity	Ch 7

Tues 11/4 Exam III

Bonding General Concepts	Ch 8
Covalent Bonding: Orbitals	Ch 9

Thurs, 12/4 Exam IV, Last Day of Class

Final Exam Date and Time: TBA

The Final Exam will be based in part on a Departmental Comprehensive Exam; the balance of the exam will be of my making. The Final is comprehensive of all the material covered in Chemistry I