

# Fundamental Chemistry

**Location:** MEDC 217

**Lecture Time:** MWF 10:00-10:50

**Instructor:** Judy Krueger

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**Office Hours:** MWF 11-12, W 3:30-4:30, Th 12:30-1:30, and by appointment

**Text book:** Steve Russo and Mike Silver, *Introductory Chemistry, 3rd Edition*, Pearson Benjamin Cummings Publishing, 2007

**Course Content:** This course is designed for students who want a background in the ideas and language of chemistry and the molecular processes of life. A math level equivalent to high school algebra is assumed. Chemistry 101 basically covers in a semester what a high school chemistry course covers in a year. Plan to spend at least 2 hours studying chemistry for each hour that you spend in class!

**Course Objectives:** The successful SCHM 104 student will be able to

- understand and apply the scientific method
- understand and explain basic atomic theory and structure
- understand basic chemical bonding patterns and molecular structure
- balance chemical equations
- understand factors that affect chemical reaction rates and equilibrium
- understand simple acid base chemistry
- understand basic nuclear chemistry
- appreciate the role of science in everyday life

**Class time:** In addition to traditional lecture, the class will encourage active learning by engaging in scientific inquiry, discussion of concepts, and problem solving. Students are responsible for all material covered during lecture and all assigned materials in the text. Bring your textbook, writing materials, and a simple scientific calculator (no graphing calculators) to class.

**Class Behavior:** Civility and respect for others is expected at all times. Questions and general class discussion are welcome, but all other talking in class is not permitted. Turn off cell phones. Texting and instant messaging are prohibited.

**Grades:** Grades will be determined on a weighted average based on at four different categories of student work and assessment.

Graded homework, assignments, activities	20%
Tests (3)	51%
Quizzes	4%
Final Exam	25%

Grading scale: A  $\geq$  90 > B+  $\geq$  87 > B  $\geq$  80 > C+  $\geq$  77 > C  $\geq$  70 > D+  $\geq$  67 > D  $\geq$  60 > F

Your grade on everything in the course is to be based on your own work. Cheating in any form is a violation of the honor code (description in the 2009-2010 Student Handbook on p. 135-6) and will be reported to the Scholar's Academy Director, Mrs. Melissa DeLoach. A first offense will result in a zero for the exercise/test. If the offense is not the first (whether in this class or another) the consequence will likely be more severe, including honor court (description in the Student Handbook) and possible failure for the course.

**Tests:** Three tests and a cumulative final exam will be given in the course. The format will be a mixture of short answers, discussion, multiple choice and problem solving. Make-up exams will be offered if you are ill (doctor's or parent's note required) or have a family emergency (note from parent required). **IF YOU MISS A TEST FOR ANY OTHER REASON, THAT TEST IS RECORDED AS A ZERO.**

**Homework:** Success in any chemistry course requires completion of the assigned reading and LOTS of problems outside of class! Mastering chemistry requires a lot of practice and problem solving. In this course, there are two types of homework problems: suggested/additional practice problems and graded problem sets.

**Suggested problems** are assigned from the textbook. These problems are not graded; however, it is **STRONGLY** encouraged that you attempt them for the following reasons:

- It will reveal what concepts you do/do not understand.
- It forces you to keep up with the material.
- It will prepare you for the tests/final exam.
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**Graded problem sets** are homework problems designed by the instructor. These assignments account for a portion of your overall grade in the course and must therefore be completed. Late assignments will not be accepted without a good reason (illness or family emergency).

### Partial Tentative Schedule

Week of	Topic	Reading Assignment	Suggested Problems
Aug 20	Intro to science	Sections 1.1& 1.5	17-8, 22-8, 35-6, 38-54, 56-8, 59-60, 62-9, 72-3, 75,
Aug 23	Intro to chemistry	Sections 1.2-1.4, 1.6	80-2, 86, 89-97
	Measurements & sig. figures	Sections 2.1-2.6	55-9, 62, 64, 66-71, 75-85, 87-9, 92-111, 129-136, 138, 140-1, 144-5, 147-9, 152, 155, 158, 160-3, 165, 169, 171, 173-9, 181-5, 187-8, 190-1, 193-9, 202
Aug 30	Dimensional analysis	Section 2.7-2.9	
	Atomic Theory	Sections 3.1-3.2	
Sept 8	Atomic Structure and the periodic table	Sections 3.3-3.6	24-5, 27-30, 35-44, 46, 50, 52-3, 55-8, 60-69
	Periodic table, Atomic spectra	Section 4.1	Study for Test 1
Sept 13	<b>Test 1</b> - covers Ch. 1, 2, and 3.1-3.6		
	Modern atomic structure	Sections 4.2-4.5, 4.8	42-6, 49-50, 52-7, 59-64, 69-70, 77, 80-93, 96-115, 117, 126-7, 129, 132-4, 136-42, 146-50, 153-4, 156-59, 161-4, 166, 168, 171-3, 176
Sept 20	Electron configurations, periodic trends	Sections 3.7 & 4.6-4.7	
	Chemical Bonding	Sections 5.1-5.6	37-8, 40, 42-3, 45, 48-9, 53-4, 56-8, 60, 62-5, 67-72, 74-5, 79-88, 91-8, 100-3, 108, 110-1, 114-8, 120-141, 143-9, 151, 153-74, 176-179-80, 182-3
Sept 27	Nomenclature	Section 5.7	
	VSEPR Theory	Sections 6.1-6.2	13, 15-6, 18-22, 25, 30-46, 48-51, 55-60, 64-5, 69-73, 77-80, 82, 85-6, 88-91, 95, 97-100
Oct 4	Polarity and IMF	Sections 6.3-6.4	

**Disclaimer:** This is a tentative syllabus, and the instructor reserves the right to make adjustments as necessary.

In keeping with University policy, any student with a disability who requests academic accommodations should contact Disability Services at 503-5199 to arrange a confidential appointment with the Disability Services Coordinator. Students are encouraged to seek an appointment as early in the semester as possible, as accommodations are not provided retroactively. Letters of accommodation must be signed and printed on letterhead from the Disability Services office. It is the student's responsibility to provide these letters to professors in a timely manner so that accommodations may be put in place.