

Southwestern College Chem 170: Introductory Chemistry Fall 2009 Section 05/07 Syllabus

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Office Hours: TTh 9:15-9:45 am, 4:20-5:20 pm and by appointment

Lectures:	TTh	8:00 – 9:15 a.m.	332	(05/07)
Laboratory:	T	12:00 – 2:50 p.m.	331	(05)
	Th	12:00 – 2:50 p.m.	331	(07)

Pre-requisites:

Math 65 or 70, Intermediate Algebra, with a grade of C or better, a higher math course, or a satisfactory score on the Math Placement Test which qualifies for enrollment in Math 240, Pre-Calculus. It is further assumed that the student can read, write and understand English at a technical level equal to that found in the texts for the course.

Course Description and Objectives:

This 4 unit course consists of three hours of lecture and three hours of lab per week. It is designed to prepare students interested in pursuing majors in the physical sciences, engineering, biology or health-related fields for future success in General Chemistry (Chem 200 and 210 at SWC). The course objectives are listed below. For a copy of the complete official course description and objectives, inquire at the office for the School of Mathematics, Science and Engineering or go to:

<http://www.swccd.edu/%7Emse/Ex1/Pdfs/Chem%20170%20F03.pdf>

1. Student will perform both metric-to-metric and English-to-metric conversions.
2. Student will demonstrate and understanding of the meaning of such terms as atomic number, mass number, isotope, and electron configuration relative to specific atoms.
3. Student will demonstrate knowledge of the underlying principles of the periodic table, the position of specific elements in it, and the trends of simple properties for such elements.
4. Student will draw Lewis electron dot diagrams for simple molecules and ions.
5. Student will demonstrate knowledge of the nomenclature of simple ionic and molecular compounds and differentiate between underlying structures of such.
6. Student will solve a variety of problems involving mass, mole, number of particles, density and volume transformations.
7. Student will balance chemical equations and perform simple stoichiometric calculations.
8. Student will describe a gas sample using the concepts of kinetic molecular theory.
9. Student will solve basic gas law problems.
10. Student will differentiate between the concepts of acids and bases within the Arrhenius and Bronsted-Lowry theories.
11. Student will, given any one of the following (pH, pOH, H₃O⁺, and OH⁻) calculate the other three.
12. Student will predict the products of certain reaction types, given the reactants.
13. Student will write the equilibrium constant expression from any appropriate equation, and do simple calculations involving concentrations and equilibrium constants.
14. Student will perform a required number of experiments, interpret the results of said experiments in writing, and demonstrate knowledge of basic laboratory procedures and safety.

Required Materials:

Cracolice/Peters, *Introductory Chemistry*,
Signature Labs Series: Chem 170 CER Lab Manual
Cengage Learning
Hein, Peisen, Best, Miner, *Foundations of Chemistry
in the Laboratory*, 12th ed.
Approved eye protection
Full-length labcoat
Scientific calculator
Access to online materials, flash memory drive
Matches
Soap
Flash drive

Recommended Materials:

Cracolice/Peters, *Active Learning Workbook for
Introductory Chemistry*
Towel

Grades:

The semester grade will be determined by combining all portions of the course, dropping the lowest quiz, and lab report. Failure to pass ($\geq 60\%$) either the lab or lecture portion of the course will result in a failing grade for the entire course. Progress reports will be given before each drop date and before the final exam. Additional progress reports can be obtained upon request. All graded assignments MUST show complete work. No credit will be awarded for assignments containing answers only.

Letter grades will be assigned as follows: A ($\geq 90\%$), B ($\geq 80\%$), C ($\geq 70\%$), D ($\geq 60\%$), F ($< 60\%$)

Exams (in lecture):

3 of 4 midterm exams	(40%)
1 final exam	(30%)

Lab grades:

Quizzes	(10%)
Lab Reports	(10%)
Formal lab reports	(10%)

Homework:

A subset of homework problems listed online and in the lab manual will be adapted and included in exams.

Re-grades:

Any paper (exam, quiz, homework or laboratory, etc.) submitted for re-grading may be subject to a complete re-grade.

Make-ups:

There will be no make-ups of experiments, quizzes or exams.

Laboratory:

All safety regulations are strictly enforced in the laboratory. Violation of these regulations will constitute grounds for removal from the class. SAFETY GLASSES AND CLOSED-TOED SHOES MUST BE WORN AT ALL TIMES IN THE LAB. EATING OR DRINKING DURING LAB IS PROHIBITED. Students must come to class on time, equipped, and prepared. Prelabs will be inspected during class. Failure to complete the appropriate prelab will result in removal from the class. Laboratory reports must be received by the beginning of laboratory class. Experimental data must be written **directly on laboratory notebooks**. Failure to do so will result in a score of zero for the assignment. Late work will be accepted up to 1 week after the due date for half credit. Failure to maintain laboratory cleanliness will result in a 5 pt deduction from the laboratory grade.

Attendance:

Students must be in attendance within the first 15 minutes of class during the first week to ensure enrollment unless prior arrangements are made with the instructor. Students may be dropped from the course if absences exceed twice the number of hours of lecture in a week or two lab meetings. Tardiness may result in exclusion from the class.

Disabilities:

Any relevant disability or health-related concern must be brought immediately to the instructor's attention so that the appropriate accommodations can be put in place.

Adds/Drops:

Last day to add is 8/29. Last day to drop is 9/11. Last day to withdraw is 11/6. Although a student may be dropped by the instructor due to class absence, it is the student's responsibility to properly withdraw from the course. Failure to do so may result in a failing grade.

Academic Integrity:

Academic dishonesty in any form will result in an assignment grade of zero. At the instructor's discretion, offenders may receive a failing course grade and be reported to the dean of students. This includes plagiarism in any form, and contact with any unauthorized materials/individuals during the administration of examinations and quizzes.

Discipline:

Anyone engaged in behavior deemed by the instructor to hinder either the teaching or learning processes will receive a warning. Failure to heed such a warning may result in that person's removal from the classroom. This includes but is not limited to the ringing of cell phones, text messaging, and interrupting either the instructor or other students.

NOTE:

The instructor reserves the right to make modifications to this syllabus and the tentative class schedule as deemed beneficial to student learning.

Academic Success Center Referral:

To further your success, reinforce concepts, and achieve the stated learning objectives for this course, you are referred to the Academic Success Center learning assistance services. Upon request for tutorial services, you will be automatically enrolled in NC 3: Supervised Tutoring, a free noncredit course that does not appear on your transcripts. Services are located in the ASC (420), the Writing Center (420D), the Reading Center (420), Math Center (426), the Library/LRC Interdisciplinary Tutoring Lab, MESA, specialized on-campus School tutoring labs, the Higher Education Center, and the San Ysidro Education Center. Online learning materials and Online Writing Lab (OWL) are available at www.swccd.edu/~asc.

Tentative Class Schedule Chem 170 (Khuong) Fall 2009 Sect. 05/07

Week No.	Date	Lectures (Chapters)	Exam Material Lab Assignments
1	Aug 18/20	1-3	Quiz: NA Lab: Check-in, Safety, Graphing, Density Assignment: Graphing - MISC 371(1-9)
2	Aug 25/27	5	Quiz: Graphing Lab: PROP 474, PROP 484 density Assignment: SigFig, ExpNot, Convn - MISC 490(1,2)/MISC 486(1)
3	Sept 1/3	6	Quiz: Significant Figures, Exponential Notation, Conversion Lab: Workshop – Nomenclature Worksheet, MISC 459 (1-5, 7)
4	Sept 8/10	7 Exam #1: Ch. 1-3, 5-6	Quiz: Nomenclature Lab: STOI 388 empirical formula Assignment: MolFormula - MISC 486 (2,3)/MISC 636 (1-3)
5	Sept 15/17	7, 4,14.1-5,15.1	Quiz: MolFormula Lab: Determination of Molar Volume /Gas Laws Worksheet (Hein)
6	Sept 22/24	8,19.2-5	Quiz: Exercise 7 Gas Laws Worksheet (Hein) Lab: Expt 2 and 3 Assignment: Chemical Equations - MISC 477 (all)/worksheet
7	Sept 29/Oct 1	9,10	Quiz: Chemical Equations Lab: Hein Expt 9 Assignment: Stoichiometry - MISC 486 (4), MISC 636 (4)
8	Oct 6/8	14.6-9 Exam 2 Ch 4, 7-10, 14, 19.2-5	Quiz: Stoichiometry Lab: THER 428 partners Assignment:
9	Oct 13/15	11,12	Quiz: Previous and current experiment Lab: Expt 4 electromag spec/(computer lab excel) Assignment: Expt 7 Models Predictions
10	Oct 20/22	13	Quiz: Expt 7 Lab: Expt 7 Models Predictions
11	Oct 27/29	15	Quiz: Expt 7 Lab: Expt 7 Models/Thiol monolayer w/questions Assignment: Solution Stoichiometry - MISC 636 (6)/MISC 486 (5)
12	Nov 3/5	16 Exam 3 Ch 11-13, 15	Quiz: Solution Stoichiometry Lab: SYNT 628 Aspirin w/ TLC Assignment: Standardization
13	Nov 10/12	17	Quiz: Solution Stoichiometry Lab: Expt 5 standardization w/ pH meters Assignment: Standardization
14	Nov 17/19	17,18	Quiz: Previous and current expt Lab: Expt 6 standardization w/ pH meters Assignment: Equilibria predictions
15	Nov 24/--	18	Quiz: Equilibria Lab: Expt 8 Equilibria
16	Dec 1/3	18 Exam #4 Ch 16-18	Quiz: Equilibria Lab: Checkout (Thu Equilibria Demo)
17	Dec 8/--	Review	TBD

Exam dates are shown in **bold**. Prelabs are required in order to begin the corresponding lab. Experiments requiring formal lab reports are denoted by an asterisk (*). For full credit, lab reports must be submitted no later than one week after the experiment is complete. Final Exam: Tuesday, December 15th 8:00 a.m.-10:00 a.m.