

Porterville College
Chemistry 101B - General Chemistry II
CRN 32171 - Spring 2012

**Instructor
Information:**

Christopher "Buzz" Piersol

Please feel free to communicate with me using any of the following methods:

Office: SM211F (exterior door labeled "Offices")

Phone (voice): 559-791-2346

Phone (text): 559-791-8346

e-mail: cpiersol@portervillecollege.edu

msn messenger: chrispiersol@hotmail.com (I **do not** read e-mail using this address)

web: <http://www.pc.cc.ca.us/piersol/chem101/>

Class Lectures: MW 8:00 – 9:25 a.m. **SM-220**

Class Labs: TR 1 – 4:10 p.m. **SM-220**

Office Hours:
M 3 – 4 p.m.
T 9:30 – 11 a.m.
W 11 a.m. – noon
R 9:30 – 11 a.m.
and also by arrangement!

Required Materials:

(obtain before the end
of 1st week)

- ✓ Text: Chemistry, 8th Ed., Zumdahl – ISBN: 0547125321
- ✓ Lab Manual: Experimental Chemistry, 7th Ed., Hall – ISBN: 0547168543
- ✓ Laboratory Notebook, Hayden-McNeil – ISBN: 978-1-930882-74-4
- ✓ Approved Splash Goggles, Vented
- ✓ Scientific Calculator

**Student Learning
Outcomes**

- A. Explain and interpret vapor pressure, phase diagrams, heating and cooling curves, while also applying the concepts of specific heat capacity, enthalpy of fusion, and enthalpy of vaporization, using related formulas.
- B. Describe and solve problems involving the properties of solutions, including structural, pressure, and temperature effects, and the standard colligative properties of boiling point elevation, vapor pressure of ideal and non-ideal solutions, freezing point depression, and osmotic pressure.
- C. Using experimental data, determine the differential and integrated rate law, calculate rate constant, and apply collision theory to evaluate reaction mechanism.
- D. Apply equilibrium concepts to physical and chemical change, such as acid-base reactions, solubility product, complex ion dissociation, electrochemical cells, and solvation.
- E. Apply the first and second laws of thermodynamics to solve spontaneity and equilibrium problems involving energy and entropy change.
- F. Describe nuclear chemical change, factors regarding stability of the nucleus, including modern applications of nuclear chemistry.

Grading:

See course schedule for test and lab dates. The final course grade will be based on a standard grading scale (i.e. A = 89.5%+, B = 79.5% - 89.49%, C = 69.% - 79.49%, D = 59.5% - 69.49%, F = 59.5%-) Each grade component will be weighted as follows:

4 Mid-Term Exams:	Labs/Pre-Labs:	Homework:	Final Exam:
55%	20%	5%	20%

Attendance:	Regular attendance of lectures and laboratories is essential. Poor attendance will be reflected in the final grade. In the event of absence or tardiness, it will be the student's responsibility to obtain handouts, assignments and/or notes from fellow students.
Students with Disabilities:	State and federal regulations require equal access to education for students with disabilities. If you require alternate media, or other disability services, please visit the Disability Resource Center in AC-115, or contact them by phone at 791-2324.
Laboratory:	You are required to <u>keep a laboratory notebook</u> and turn in the carbon copy. Starting the 2nd week of lab, some laboratory activities will require laboratory reports to be turned in. These will be weighted higher than other labs. Laboratory reports are due at the beginning of the lab, one week, following the date of the lab activity. Each business day the lab is turned in late will result in a 10% deduction from the total score of the lab. Read the following handouts for more information: laboratory schedule, laboratory grading rubric, and <u>Laboratory Assignment Guidelines</u> .
Exam/Lab Make-Up Policy	Exam and lab make-ups will only be allowed if the instructor is contacted prior to, or during the absence and for unavoidable absences only. In the event that a laboratory make-up is not possible, an assignment will be given. Make-ups will not be given for any avoidable absence. Contact methods are listed at the top of this syllabus.
Homework:	I expect students to work out most of the problems at the end of each chapter of the textbook, however, I will generally only assign <i>every other odd</i> (EOO) question (i.e. 1, 5, 9, 13, or 4n+1). Homework will be due beginning of the class meeting following the day it was assigned.
Other Resources:	Office hours are free! Tutors may be available, as announced in class. There are free references (to borrow!) in the SM211 common areas. The instructor is available in the Learning Center on Mondays 3-4 and Thursdays 9 – 11 a.m. The library has a recent addition of the CRC Handbook of Chemistry and Physics, along with other chemistry references. There are many fun chemistry sites on the internet (some good, some bad). The textbook has an "Online Study Center" at http://www.cengage.com/highered/ (search the text ISBN) . I also encourage students to form study groups.
Withdrawal Policy:	Stay on track and keep up with the work as much as possible, however withdrawal from the course may be necessary if you are making poor progress. Withdrawal by the 30% date (February 21) does not result in anything appearing on your transcript. Withdrawal by the 60% date (March 30), from the course results in a 'W' appearing on your transcript. Students may not withdraw from a course after the 60% date. A student who is not attending class and does not officially withdraw through admissions or MyBanweb will likely receive a grade of 'F' on his/her transcript. Be sure you understand this policy! <i>It is the student's responsibility to ensure that he/she has withdrawn from the class!</i> For more information, please refer to the PC catalog.
Class Bulletin Boards:	Chem 101 grade updates will be posted in the classroom (SM-220).

Spring 2012 Exam Schedule (during lab meeting)

There are four exams scheduled throughout the semester during Laboratory meeting times plus the final exam.

Exam	Week	Exam Date
1	4	Thursday, February 9
2	7	Thursday, March 1
3	10	Thursday, March 22
4	13	Thursday, April 19
Final	16	Monday, May 7, 7:30 a.m.

Spring 2012 Lecture Schedule (MW 8 – 9:25 a.m.)

Week	Class Date	Chap	Lecture Topics
1	1/16	--	<i>Martin Luther King, Jr. Holiday – No Class Meeting</i>
	1/18	10	Read text: 10.1,10.8,10.9 / Vapor Pressure, Phase Diagrams
2	1/23	11	Solutions, Solubility
	1/25	11	Colligative Properties of Solutions
3	1/30	12	Reaction Rates, Rate Laws
	2/1	12	Reaction Path and Rate, Catalysts
4	2/6	13	The Equilibrium Constant & Expression
	2/8	13	Equilibrium Calculations
5	2/13	13,14	Le Chatelier's Principle, Intro Acids
	2/15	14	Acid Definitions, Strength & Acid Constant, Conjugate acid/bases
6	2/20	--	<i>Washington Day Holiday -- No Class Meeting</i>
	2/22	14	Calculation of pH: strong acids & bases, weak acids & bases, acid mixtures
7	2/27	14	Acid Structure, Oxides, Lewis Definition
	2/29	15	Buffer Solutions
8	3/5	15	Acid-Base Titration Calculation of pH
	3/7	16	Solubility of Ions in Acid, Solubility Product
9	3/12	16,17	Complex Ions, Spontaneity
	3/14	17	Entropy and Free Energy
10	3/19	17	Free Energy Calculations, Equilibrium, Work
	3/21	18	Electrochemistry: Galvanic & Electrolytic Cells
11	3/26	18	Electrochemistry: Half-Reactions, Potential, Calculations
	3/28	19	Nuclear Chemistry, Radioactive Decay
--	4/2	<i>Spring Break - No Class Meetings</i>	
	4/4		
12	4/9	19	Half-life, Nuclear Stability
	4/11	19	Nuclear Fission & Fusion, Reactors
13	4/16	20	Representative Elements, Alkali Metals
	4/18	20	Representative Elements, Properties & React
14	4/23	20	Representative Elements - Group 5A
	4/25	20	Representative Elements - Groups 6 & 7
15	4/30	21	Trends in Transition Metals, Coordination Cpds
	5/2	21	Local Electron Model, Crystal Field Theory
16	5/7	10-21	Final Exam: Monday, May 7, 2012, 7:30 – 9:30 AM

Spring 2012 Lab Schedule (TR 1 – 4:10 p.m.)

Lab Reports are required for Experiments 28, 35, 32, 34, 43, and 57 (chronological order).

See Laboratory Assignment guidelines and Laboratory Grading Rubric for more information about the laboratory.

Week	Lab Date	Hall Manual Experiment	Lab Topic
1	1/17	--	Check-in, safety, and <i>pre-catch-up</i> lecture: IM Forces, liquids
	1/19	44	Preparation of a coordination complex of copper
2	1/24	45	Inorganic Preparations – Sodium Thiosulfate
	1/26	28	Colligative Properties – Freezing Point Depression Lab Report (due 2/2)
3	1/31	--	<i>Catch-up lecture</i>
	2/2	30	Rates of Reactions
4	2/7	--	<i>Review for exam</i>
	2/9	--	Exam 1
5	2/14	10	Mixtures 3: Thin-Layer Chromatography
	2/16	35	Acids, Bases, and Buffered Systems Lab Report (due 2/23)
6	2/21	32	Spectrophotometric Determination of K_{eq} Lab Report (due 2/28)
	2/23	33	Stresses Applied to Equilibrium Systems
7	2/28	--	Review for exam
	3/1	--	Exam 2
8	3/6	--	<i>Catch-up lecture</i>
	3/8	34	Solubility Product of Silver Acetate Lab Report (due 3/15)
9	3/13	43	Gravimetric Analysis 2: Determination of Sulfate Ion Lab Report (due 3/20)
	3/15	55	Polymeric Substances 2: Synthesis of Nylon
10	3/20	--	Review for exam
	3/22	--	Exam 3
11	3/27	40	Electrochemistry I – Chemical Cells
	3/29	56	Qualitative Analysis – Group I
--	4/2	Spring Break - No Class Meetings	
	4/7		
12	4/10	57	Qualitative Analysis – Group II Lab Report (due 4/17)
	4/12	58	Qualitative Analysis – Group III
13	4/17	--	Review for exam
	4/19	--	Exam 4
14	4/24	58	Qualitative Analysis – Group III continued
	4/26	59	Qualitative Analysis – Groups IV & V
15	5/1	--	<i>Review / Marathon Problem</i>
	5/3	--	<i>Review for Final Exam</i>