



# Pima Community College

## West Campus

## CHM 130IN Fundamental Chemistry Syllabus for Spring 2013

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### Course Information:

Course Prefix/Number: **CHM 130IN**

Course Title: **Fundamental Chemistry**

Semester: **Spring 2013**

CRN (Section Code): **22594, 22595**

Class Days/Times: **MW 1:40-3:30 p.m.**

Site/Room: **Rincon F-219**

Credit Hours: **5.0**

Teaching Format: **Intergrated Lecture-Lab**

### Instructor Information:

Name: **David A. Katz**

Office: **E-235 (Tortolita Building)**

US Mail: **Pima Community College  
2202 W. Anklam Rd.  
Tucson, AZ 85709-0270**

Phone/Voice Mail: **(520) 206-6044**

E-mail: **dkatz@Pima.edu**

Web site: **<http://www.chymist.com>** (Select Pima Chem Courses, then Chem 130)

Availability: **Office hours: MW 9:00-10:00 a.m.; 2:00-3:00 p.m. TTh 11:00-12:00 a.m.; 3:30-4:30 p.m.  
(If I am not in my office, I will be in the chem lab)**

**Generally, in addition to my office hours, I am in the office at least 30 minutes before or after class (if I am not in the lab). I am also available by appointment.**

### Instructional Materials:

**Required Text:** Bettelheim, Frederick A., William H. Brown, Mary K. Campbell, and Shawn O. Farrell, **Introduction to General Organic and Biochemistry**, Eighth Edition, Thomson-Brooks/Cole, 2007

Availability: Online at [www.amazon.com](http://www.amazon.com) or [www.half.com](http://www.half.com) (Both new and used books available)

The textbook is used for **two semesters, CHM 130-140**. You should not be required to purchase another textbook at additional cost if you continue the chemistry course at this campus.

**Laboratory Manual:** **CHM 130 Laboratory**, Catalyst, the Pearson custom library for chemistry, Pearson Learning Systems, 2013

**Important:** This course is taught as a web enhanced course. You must have access to a computer with Internet connections. Important materials for both reading and problem assignments for class are available at [www.chymist.com](http://www.chymist.com) under the submenu "General Chemistry Survival Manual". This syllabus, along with course notes, some additional readings, and references, is also available under the submenus "Pima Chem Courses" and "Chem 130".

**Required:** A scientific calculator. Cell phones and PDA's are not permitted in place of calculators in quizzes or exams.

### Course Description:

**Prerequisite(s):** MAT 092 with a grade of C or better, or required score on the mathematics assessment test.

**CHEMISTRY 130** is an introductory course that reviews the fundamental theories, principles and laws of chemistry for the study of some life processes. This course covers inorganic chemistry and introductory organic chemistry and includes a number of allied health related topics. This course can be used as a prerequisite for CHM 151-152.

The content of this course includes both principles and problems in the areas of metric and SI systems, atomic structure, the periodic table, chemical bonding, the states of matter, dimensional analysis, chemical formula writing and nomenclature, chemical equations, stoichiometry, kinetics, equilibrium, acids and bases, nuclear chemistry, and introductory organic chemistry. Both the qualitative and quantitative aspects of chemistry will be examined along with examples and applications in our modern world.

Since problem solving is a necessary part of the course, students should review basic mathematics and algebra with emphasis on exponents and roots, manipulations of algebraic equations, and construction of graphs and tables. The use of scientific calculators is permitted for all aspects of this course. A math review exercise is available at <http://www.chymist.com/Math.pdf> If you cannot successfully complete these problems, you will encounter difficulty in this course.

### Course Objectives:

Upon completion of the course, the student will be able to do the following:

1. Take measurements, correctly using scientific notation and significant figures, and perform appropriate unit conversions.
2. Critically apply the scientific method to data collection and analysis.
3. Demonstrate an understanding of the atom including its component parts, electron configurations and the relationship between periodic characteristics and the electron.
4. Identify the type of bonds that will form between given atoms and then correctly predict the formulas of simple binary and tertiary compounds. Once bonding occurs, demonstrate the ability to draw Lewis Structures, predict shape and polarity.
5. Demonstrate the ability to work with chemical equations including balancing and completing stoichiometry calculations relating mass, moles, and energy.
6. Demonstrate an understanding of the chemistry associated with describing and modeling the behavior of gases including application of the Ideal Gas Law and Kinetic-Molecular Theory.
7. Demonstrate an understanding of the characteristics associated with liquids including those related to intermolecular forces and evaporation.
8. Demonstrate an understanding of the concepts associated with solutions and mixtures including solubility and the determination of concentration.
9. Describe the conditions necessary for a reaction to occur and the factors that effect the rates of chemical reactions.
10. Describe the concept of dynamic chemical equilibrium and predict changes in equilibrium by applying LeChatelier's Principle or the Equilibrium Constant.
11. Demonstrate an understanding of the concepts associated with acids and bases including the basis of their reactivity, their definitions, tracking their concentration via pH and the function of buffers.
12. Demonstrate an understand the basics of the chemistry associated with the nucleus including nuclear stability; the emission of radiation and one or more applications of nuclear chemistry.

## Lecture Outline

The following outline presents topics and subtopics in the order they will be discussed in class along with reading assignments and problem assignments. The course content does not necessarily follow the book in a chapter by chapter and page by page order. Read chapters before the material is discussed in lecture. Problem assignments list applicable problems at the end of each chapter. Problems can be worked on in advance or after methods of problem solving are demonstrated and explained in class. Answers to selected problems (mostly the odd-numbered problems) are located in the back of the textbook.

During the semester, there may be a number of interactive discussion sessions in class. These may be based on material from the textbook or on supplemental readings on topics or applications supplied by your instructor.

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>Pre-class Assignment</b> You should be able to solve these problems to succeed in this course</p>	Math Review (on web site)	Math Review All problems
<p><b>1. Introduction and History</b></p> <ol style="list-style-type: none"> <li>Chemistry and its branches</li> <li>The elements</li> <li>Scientific method</li> <li>The historical background of chemistry</li> <li>Measurement: body parts to SI</li> <li>Temperature: determining hot and cold</li> <li>Matter: classification and properties</li> <li>Density</li> <li>Energy</li> <li>Specific Heat</li> <li>Dimensional analysis (Factor-label)</li> <li>Significant figures</li> <li>Scientific notation</li> </ol>	<p>Chapter 1 Pages 1-25</p> <p>Metric System (on web site)</p> <p>Temperature (on web site)</p> <p>Problem Solving by Dimensional Analysis (on web site)</p> <p>Significant Figures, Exponents, and Scientific Notation (on web site)</p>	<p>Chapter 1 Pages 25-28 Problems: 1.14-1.36, 1.39-1.53, 1.56-1.61, 1.63</p> <p>Temperature All problems</p> <p>Problem Solving by Dimensional Analysis All problems</p> <p>Significant Figures, Exponents, and Scientific Notation All problems</p>
<p><b>2. Atoms, Molecules and Intro to Nuclear Chemistry</b></p> <ol style="list-style-type: none"> <li>Development of the Atomic Theory</li> <li>Understanding compounds: Laws of definite composition and multiple proportions</li> <li>Elements and allotropes</li> <li>The periodic table</li> <li>Pieces of atoms: Subatomic particles</li> <li>X-rays and radioactivity</li> <li>Piecing it together: The nuclear atom</li> <li>Isotopes and atomic masses</li> <li>Avogadro's hypothesis and the Mole</li> <li>Nuclear decay and half-life</li> <li>Applications of radioactive isotopes</li> <li>Radiation and human health</li> <li>Electromagnetic radiation</li> <li>Into the light: Atomic spectra</li> <li>A new look at light: The quantum theory</li> <li>The atom takes shape: The Bohr model</li> <li>Electron waves</li> <li>The uncertainty principle: Does God play dice..?</li> <li>The quantum mechanical atom</li> <li>Energy levels, and orbitals</li> <li>Electron distributions</li> <li>The periodicity of electron configurations</li> <li>Some periodic properties of elements</li> <li>Removing electrons: ionization energy</li> <li>Gaining electrons: Electron affinity</li> <li>Atomic and ionic size</li> <li>aa) Discussion: Extending the periodic table</li> </ol>	<p>Chapter 2 Pages 29-59</p> <p>Chapter 3 Pages 62-89</p> <p>Web Elements Periodic Table <a href="http://www.webelements.com">http://www.webelements.com</a></p>	<p>Chapter 2 Pages 59-62 Problems: 2.8-2.10, 2.14-2.19, 2.22-2.24, 2.26-2.29, 2.32-2.45, 2.48-2.53, 2.56, 2.58-2.61</p> <p>Chapter 3 Pages 89-93 Problems: 3.8, 3.12-3.30, 3.33, 3.34</p>

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>3. Chemical Bonding, Molecular Geometry, Compounds, Formulas, Nomenclature and Intro to Organic Compounds</b></p> <ul style="list-style-type: none"> <li>a) Trading electrons: The ionic bond</li> <li>b) Sharing electrons: The covalent bond</li> <li>c) Extra hold: Multiple bonds</li> <li>d) Molecular elements</li> <li>e) Arranging atoms: Lewis structures</li> <li>f) Keeping things together: Bond energies</li> <li>g) Tug-of-war: Bond polarity and electronegativity</li> <li>h) Spreading out: VSEPR Theory</li> <li>i) Polarity of molecules</li> <li>j) Metallic bonding</li> <li>k) Combining atoms: Oxidation numbers</li> <li>l) Putting atoms together: Formulas of ionic compounds</li> <li>m) Naming of compounds</li> <li>n) Formula and molecular masses</li> <li>o) Formulas of molecular compounds: organic molecules</li> <li>p) Alkanes</li> <li>q) Isomers</li> <li>r) Nomenclature of alkanes</li> <li>s) Sources and properties of alkanes</li> <li>t) Petroleum and petroleum products</li> <li>u) Alkenes and alkynes</li> <li>v) Benzene</li> <li>w) Functional group compounds</li> <li>x) Analyzing compounds: Percent composition</li> <li>y) Discussion: Determining the composition of materials</li> </ul>	<p>Chapter 4 Pages 93-123</p> <p>Chapter 5 Pages 129-134</p> <p>Chapter 10 Pages 285-298</p> <p>Chapter 11 Pages 302-325</p> <p>Chapter 12 Pages 330-338</p> <p>Chapter 13 Pages 358-363</p> <p>Formula writing and Nomenclature (Answers on web site)</p> <p>Chemical Formulas and Formula Weight Calculations (on web site)</p>	<p>Chapter 4 Pages 123-128 Problems: 4.17, 4.20, 4.23, 4.27-4.50, 4.53, 4.56, 4.58, 4.71-4.82</p> <p>Chapter 5 Page 155 Problems: 5.17-5.29</p> <p>Chapter 10 Pages 298-301 Problems: 10.7, 10.10, 10.14-10.17, 10.21, 10.22, 10.26, 10.27, 10.32</p> <p>Chapter 11 Pages 326-329 Problems: 11.13, 11.14, 11.23, 11.24, 11.52</p> <p>Chapter 12 Pages 353-357 Problems: 12.15, 12.16, 12.19, 12.20</p> <p>Formula writing and Nomenclature All problems</p> <p>Chemical Formulas and Formula Weight Calculations All problems</p>
<p><b>4. Solutions and Colloids</b></p> <ul style="list-style-type: none"> <li>a) Solutions and terminology</li> <li>b) The solution process</li> <li>c) Solubility and temperature</li> <li>d) Water and its role in solutions</li> <li>e) Solubility of gases</li> <li>f) Organic and biochemical molecules</li> <li>g) Percent</li> <li>h) ppt and ppb</li> <li>i) Molarity</li> <li>j) Dilution</li> <li>k) Vapor pressure of solutions</li> <li>l) Colligative properties</li> <li>m) Freezing point depression and boiling point Elevation</li> <li>n) Osmotic pressure</li> <li>o) Colloids</li> </ul>	<p>Chapter 7 Pages 192-217</p>	<p>Chapter 7 Pages 218-222 Problems: 7.15, 7.17-7.74, 7.80</p>

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>5. Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>a) The meaning of a chemical equation</li> <li>b) Atomic bookkeeping: Balancing equations</li> <li>c) Types of chemical reactions</li> <li>d) Oxidation-reduction</li> <li>e) Reactions in solution</li> <li>f) Net ionic equations</li> <li>g) Conserving matter: Mass relationships</li> <li>h) Yield: Theoretical, actual, and percent</li> <li>i) How far can you go: Limiting reagents</li> <li>j) Heat of reaction</li> </ul>	<p>Chapter 5 Pages 135-154</p> <p>Writing Chemical Equations (on web site)</p>	<p>Chapter 5 Pages 155-159 Problems: 5:30-5.77, 5.79, 5.80</p> <p>Writing Chemical Equations: Balancing equation problems and Identification of types of reactions only</p>
<p><b>6. Gases, Liquids, and Solids</b></p> <ul style="list-style-type: none"> <li>a) States of matter compared</li> <li>b) Kinetic theory and change of state</li> <li>c) Pressure</li> <li>d) Pressure-volume relationships: Boyle's Law</li> <li>e) Temperature-volume relationships: Charles' Law</li> <li>f) The Ideal Gas Law: P-T-V relationships</li> <li>g) Avogadro's law</li> <li>h) Stoichiometry in gas reactions</li> <li>i) Mixtures of gases: Dalton's Law</li> <li>j) Moving gases: Graham's Law</li> <li>k) Liquids</li> <li>l) Pulling it in: Surface tension</li> <li>m) Escaping the masses: Evaporation</li> <li>n) Heat of vaporization</li> <li>o) Vapor pressure</li> <li>p) Boiling and freezing points</li> <li>q) Solids</li> <li>r) Crystal structure</li> <li>s) Phase diagrams</li> <li>t) Discussion: Liquid crystals</li> </ul>	<p>Chapter 6 Pages 160-188</p>	<p>Chapter 6 Pages 188-191 Problems: 6.13-6.59 (odd nos.), 6.60, 6.61-6.6.73 (odd nos.)</p>
<p><b>7. Reaction Rates and Chemical Equilibrium</b></p> <ul style="list-style-type: none"> <li>a) Collision theory and rates of reactions</li> <li>b) Factors affecting rates</li> <li>c) At the molecular level: Reaction mechanisms</li> <li>d) Activation energy</li> <li>e) Equilibrium</li> <li>f) The equilibrium constant</li> <li>g) Le Chatelier's principle</li> </ul>	<p>Chapter 8 Pages 223-246</p>	<p>Chapter 8 Pages 246-250 Problems: 8.11-8.15 (odd nos.), 8.16-8.22, 8.24-8.31, 8.36-8.41, 8.43-8.45</p>
<p><b>8. Acids and Bases</b></p> <ul style="list-style-type: none"> <li>a) General properties of acids and bases</li> <li>b) The Arrhenius theory</li> <li>c) The Bronsted-Lowry theory</li> <li>d) The Lewis theory</li> <li>e) pH and pOH</li> <li>f) Weak and strong acids and bases</li> <li>g) Polyprotic acids and bases</li> <li>h) <math>K_a</math> and <math>K_b</math></li> <li>i) Hydrolysis</li> <li>j) Acid-base titrations</li> <li>k) Indicators</li> <li>l) Common ion effect</li> <li>m) Buffers</li> </ul>	<p>Chapter 9 Pages 251-280</p>	<p>Chapter 9 Pages 281-284 Problems: 9.13, 9.15-9.18, 9.21-9.29 (odd nos.), 9.33-9..39, 9.41-9.63 (odd nos)</p>

### Course Requirements:

The final course grade will be based on quizzes, hour exams, a final exam and laboratory. The approximate percent weight of each is given below:

Quizzes .....	20%
Exams .....	40%
Final Exam .....	20%
Lab .....	20%

## Chem 130IN Course Policies and Information

### Messages/Contacting your instructor

You can communicate with me, send papers, etc., via my email address on the first page of this document.

Please be advised that email occasionally gets misdirected, can end up being blocked by a spam filter, or lost in cyberspace. (Blank subject lines or subjects such as "Hello" may go directly into a trash file.) **You should receive a reply confirming that your emailed message was received within 48 hours of submitting it.** It is your responsibility to make sure that the message was received.

### Homework/Problem Assignments

Each type of problem or calculation is explained in class. Problem assignments, as listed in the lecture outline, are your responsibility to work out and review. Specific problems may be specified or deleted by your instructor. Since student solution manuals are available, problem assignments are not collected or graded. After a particular type of problem is reviewed in class, your instructor will schedule a quiz on that type of problem.

**Proper problem solving means that each problem requires a clear and organized set-up.** If the problem involves a formula, you must show the formula, substitution of fixed values and variables, and the proper units. Problems that do not utilize a formula must be clearly set up with all the proper units. Final answers should be underlined or circled and must include the proper units. Whether or not it is stated on exams or quizzes, you cannot get full credit for a problem without an organized set-up. The final numerical answer to any problem, on a quiz or exam, is worth one point.

Proper problem solving is explained in class. Very few problems are solved on PowerPoint presentations, rather they are set-up and explained in class with step-by-step explanations written on the whiteboard.

### Calculators

You are required to have a scientific calculator (graphing functions not required) for quizzes and exams. You may not use the calculator function on your cell phone or on an iPod or equivalent PDA.

Inexpensive scientific calculators are available from a number of retailers in town. The calculator should be able to calculate scientific notation, powers, and roots.

### Computer

This course is taught as a web-enhanced course. You must have access to a computer. This syllabus, along with reading material and problem sets are available on my web site at <http://www.chymist.com>. The syllabus and some additional readings are located on the *Pima Chem Courses* link under Chem 130. Reading material and problem sets are located under the heading of **General Chemistry Survival Manual**.

You may need to access additional information for this course on the Internet.

### Quizzes

There will be frequent quizzes during the semester. All quizzes are announced in class. Each quiz will cover a specific topic or assignment. Each quiz has a time limit. Questions and problems on quizzes are aimed at showing basic skills in problem solving.

All quizzes have the same weight, even if the point count on particular quizzes differs. Every effort is made to grade and return quizzes by the next class. Grades on quizzes are calculated as fractions or percentages.

At the conclusion of each quiz, an answer key is distributed to the class and the quiz is reviewed. Once the first answer key is distributed, the quiz is considered to be over and anyone arriving late will be considered to have missed that quiz.

There is no curve applied to any quiz.

Assuming at least 6 quizzes have been given during the semester, if you have taken all the quizzes, your lowest quiz grade will be dropped when calculating your final quiz average.

If you miss more than 30% of the quizzes during the semester, then the weight of your quiz average, in calculating your final class average will be discounted by 50%. If you miss more than 50% of the quizzes, then none of your quizzes will be counted in your final class average.

### **Exams**

There will be three exams (with a possibility of a fourth exam) during the semester. The exams cover information from the appropriate chapters in the textbook, information discussed in class, classroom demonstrations, and any supplementary readings or related material assigned. Questions and problems are designed to show understanding of course material and may be more complex than those problems which appeared on quizzes.

All problems will require proper organized set-ups and calculations. Some questions will be in multiple choice format and some questions may require written answers or short discussions (short essay type questions). Every effort is made to grade and return exams in about one week to ten days (about three class periods). Grades on exams will be calculated as percentages based on total possible point scores.

Exams are given during normal class time. You are expected to complete the exam within that time period. If you need extra time, please request taking the exam in the Testing and Assessment Center.

There is no curve applied to any exam.

Since information that appears on quizzes also appears on exams, if you have completed all the exams during the semester and your exam average is higher than your quiz average, then your quiz average will be dropped from your final grade calculation.

If you have completed all the exams during the semester, your lowest exam grade will be discounted by 50% when calculating your exam average for the semester.

### **Final Exam**

There will be a final exam at the end of the semester. Your instructor may utilize the American Chemical Society (ACS) General-Organic-Biochemistry Exam as the final exam. The exam is cumulative, and will include concepts and calculations from the entire semester. Conceptual understanding of course material is important for the final exam. There are study guides for the ACS exam in the library, but do not rely on the study guide alone in preparing for the exam. In addition, there may be a sheet of supplementary questions or problems added to the exam if the class, as a whole, is not mastering specific topics.

The grades on the ACS final exam are adjusted for both local and national norms. If your final exam grade is significantly higher than your exam and quiz average during the semester, extra weight will be given to the final exam.

The ACS final exam utilizes a confidential test booklet. Any writing in the test booklet will reduce your final score by 10 points. If the writing in the test booklet is considered to be extensive, you will receive a grade of zero for the final exam.

The final exam is required for completion of this course. Failure to take the final exam will result in a grade of zero.

If you miss the final exam for some valid reason, you must contact your instructor within 24 hours after the exam or the assigned grade of zero will not be removed. Your instructor will require documentation of your excuse.

### **Testing and Assessment Center**

The West Campus Testing and Assessment Center is located in room C-141 in the C building.

If you want to take an exam in an other-than-classroom environment, please request taking the exam in the Testing and Assessment Center, **in writing or by email**, at least 48 hours before the exam.

Exams given in the testing center will still have a time limit. If you exceed the time limit, you will be penalized by a minimum of 10% of your score, depending on the amount of time over the limit.

You cannot walk into the Testing Center and request an exam without previous arrangements. Should the testing center give you an exam, it will not be counted.

If you want to take a quiz in the Testing Center, you can take it any time during the day preceding the day it is given in class. If you want to take it the same day as the quiz is given in class, you must start the quiz within 15 minutes of the normal class meeting time. This is due to the fact that answer keys are distributed in the classroom and I have no control on a student leaving class early with the answer key.

The testing center hours are from 8:00 a.m. to 7:00 p.m. Monday thru Friday. Allow yourself sufficient time to complete any exam before 6:45 p.m.

### **Laboratory Experiments and Laboratory Reports**

This is an integrated class, which means that your laboratory grade is part of your final course grade. Although the laboratory classes are scheduled separately from the lecture portion of the course, there may be occasional small scale laboratory experiments in the lecture class.

You are expected to read each experiment and check the safety precautions for all chemicals used in the experiments before coming to class.

Some experiments, not included in the laboratory manual, will be on the CHM 151 web page of my web site. You are expected to download and read those experiments or activities before coming to class.

Missed laboratory experiments will be graded as a zero.

Laboratory reports follow the format outlined in Appendix H of the laboratory manual. Some downloaded experiments may contain data pages which can be used in the laboratory reports. Data analysis calculations, graphs, and questions must be completed for each laboratory report. Your laboratory instructor will explain the requirements for laboratory reports.

Generally, reports are due no later than **one week** after the experiment is completed. Past that time, points will be deducted for lateness. If you were not present for the laboratory experiment, you cannot hand in a laboratory report or be part of the group that completed the laboratory experiment.

Laboratory reports may be graded on a 10 point, 25 point, or 100 point scale, or a total point scale, by your laboratory instructor, based on neatness, completion of data, and answers to questions. Missed or incomplete experiment reports may be graded as a zero.

Questions based on the laboratory experiments and calculations may appear on exams and quizzes. You are responsible to know how a laboratory experiment works (theory and general procedure) and how to do the calculations.

### **Submitting Work and/or Contacting Your Instructor**

Any take-home quizzes, exams, or projects should be submitted in writing no later than the dates specified. Depending on the type of assignment, late papers may not be accepted. For any assignment that has a flexible deadline, late papers will be downgraded by 10 points the rest of the day after class is over. An additional 10 points will be deducted until the next class period. After that, a grade of zero will be recorded for that assignment.

You may submit your assignment via the Internet if you cannot be in class on the day it is due. The time stamp on the message, when it is received, will determine the date. **You should receive a reply confirming that your emailed assignment was received within 48 hours of submitting it.**

### **Make-up Policy**

**THERE ARE NO MAKE-UP EXAMS OR QUIZZES** no matter how valid your excuse may be. All exams and quizzes are scheduled with advance notice and they are given once only. **THIS INCLUDES PARTS OF AN EXAM OR A QUIZ MISSED AS A RESULT OF LATENESS TO CLASS.** If you miss a quiz or exam, it does not count against you (i.e., you will not get a grade of "zero"), but your grade will be calculated differently from the percent weights stated in the course requirements.

If you miss more than 25% of the quizzes during the semester, then your grade will be based on exams and the final exam only.

**MISSING THE FINAL EXAM WILL RESULT IN A GRADE OF "ZERO" AND CAN RESULT IN YOUR FAILING THE COURSE**

If you have a previous scheduled appointment or event or know in advance that you will be late or not be present for a quiz or an exam, arrangements can be made for you to take that quiz or exam under special conditions, such as taking the exam one day earlier than the class. Such requests must be made at least three days before the scheduled test day. If you have a conflict with the final exam, it must be resolved by the last day of class during the semester. Failure to resolve a conflict will not excuse you from the final exam.

If you desire more time to complete an exam or quiz or just want to take that test in a different-than-the-class environment, you may request to take the test in the Testing and Assessment Center in the C Building. Please make that request at least one class before the scheduled test.

If you have a conflict with the final exam, it must be resolved by the last day of class during the semester. Failure to resolve a conflict will not excuse you from the final exam.

### **Academic Integrity**

Violations of scholastic ethics are considered serious offenses by Pima Community College, the Department of Chemistry and by your instructor.

Cheating on exams or quizzes will result in a grade of "zero" for that exam or quiz, and, at the instructor's discretion, possibly an F for the course. The zero will be calculated into your final grade point average for this course. Any zero grade assigned for cheating will remain as part of your average and will not be dropped.

Duplicate answers to questions or problems on quizzes and/or exams from individuals sitting next to one another can be considered as circumstantial evidence of cheating.

Occasionally, you may receive a take-home worksheet, quiz or exam. Such assignments can be completed by conferring with other students, researching information in textbooks or reference books, or on the Internet. It is expected that the final work turned in will be essentially your own, but it may be similar to that of other students you may have worked with. A large number of identical papers in the class will invalidate that assignment.

If your instructor allows you to remain in class, any cheating will be calculated into your final grade. Students who have received zeros for cheating will not be given W grades if they have not withdrawn from the course by the official withdrawal date.

Cheating may be reported to the Academic Dean, even if the student(s) involved have withdrawn from the course.

Students may consult the PCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at PCC campus libraries and at <http://www.pima.edu/~coadmissions/studresp.htm>.

### **Attendance**

As this is an integrated class, attending class is a requirement for this course. Most of the important material that will be on the exams and quizzes is discussed in class. Laboratory experiments are designed to compliment course material. **Not everything is in the textbook.** Relevant information and applications of course material, as well as demonstrations, are also presented in class, that material is not in the textbook. You cannot pass the exams by reading the textbook and supplementary materials only. If you miss a class, your instructor can tell you what material was covered and summarize any discussions that took place, however, instructors do not have a set of formal lecture notes you can copy. It is your responsibility to get detailed notes from one (or preferably two) classmate(s).

The laboratory component is also a required part of this class. You are required to complete the laboratory experiments. Absence from class also counts as absence from laboratory.

If you are absent from class for an extended period due to illness, an accident, or another valid reason, please have someone contact your instructor.

### **Extra Credit**

THERE IS NO EXTRA CREDIT.

You must demonstrate that you have mastered a substantial amount of the course material to obtain a passing grade.

### **Lateness**

Lateness to class is disruptive to the other students. Please make every effort to get to class on time. If you do arrive late for a class, please come into the room quietly, find a seat, and get organized for class. Please avoid walking across the front of the classroom, disrupting the lecture or discussion. Try to walk around the back of the room.

If work or other circumstances will prevent you from getting to class on time, please see your instructor as soon as possible to discuss the problem.

### **Storms/Traffic or Other Problems**

In the event of a severe storm, other major weather problem, a severe traffic problem, or a power outage, the area may experience transportation disruptions and traffic delays. If an exam is scheduled or a major assignment is due on a day when there is a severe weather (this excludes normal rainfalls), a major traffic problem, or other area problem, the exam or assignment deadline will be postponed until the next class.

**Classroom Behavior:**

Because of insurance limitations, non-registered visitors are not allowed at class sessions or on field trips.

Possession of drugs, alcohol or firearms on college property is illegal.

Eating, drinking, smoking and soliciting are not allowed in classrooms.

Pets (service animals excepted), telephones, pagers and other electronic devices that distract students are not permitted in classrooms. Please turn off these devices during classes.

Students are expected to exhibit courteous and respectful behavior in class. You are here for the purpose of furthering your education. Students who are disrespectful of others or who are creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.

**Withdrawals**

Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be kind enough to inform your instructor if you withdraw.

Students who are not regularly attending class and who have not submitted any assignments nor taken any quizzes or exams by the census date are assumed NOT to be participating in the class may be administratively withdrawn by the instructor.

Please be sure to withdraw yourself before the 2/3 semester deadline if you do not expect to complete the class, otherwise you may receive a grade of "F" for the course.

A withdrawal may affect your academic standing at the college as well as any financial arrangements such as loans or scholarships. It is your responsibility to verify that a withdrawal does not affect any financial arrangements you have for your schooling.

Your instructor has the ability to enter a **late withdrawal** grade (W) at the end of the semester as a final grade for the course if you request it, **in writing**, by the date specified in this syllabus, and have not withdrawn by the normal two-thirds mark of the semester. Once final grades have been entered, you cannot retroactively request a D or F to be changed to a W.

If you have not attended class, and have not withdrawn by the 2/3 semester date, your instructor will not honor a late withdrawal request.

**Incomplete grades** are only given when a significant amount of class has been missed for medical or other legitimate reasons. (See information which follows)

**ADA Compliance**

Pima Community College is committed to providing accommodations for qualified individuals with disabilities in a timely and effective manner. To request a reasonable accommodation, students must be registered with the campus Disabled Student Resources (DSR) office. Accommodations will be made based on eligibility determined by Disabled Student Resources. Services can be requested at any time during the semester. Requesting services well in advance will help to ensure that resources are available when needed. Please contact a DSR office at 206-4500 or [DSRhelp@pima.edu](mailto:DSRhelp@pima.edu).

**Workload**

Students are expected to spend the normal amount of time required for a college course attending class sessions, doing assignments and research, reading and preparing for exams. The standard Carnegie Unit of college credit assigns 1 credit hour for each 15 hours of class time and assumes that students spend two hours working outside the classroom for each hour of classroom instruction. For a three-credit course, this translates to 135 hours per semester or an average of nine hours per week for a 15/16-week semester.

**Spring 2013 Calendar of Important Dates**

Jan. 14	Spring classes begin
Jan. 21	Martin Luther King holiday (college closed)
Jan. 28	Last day to withdraw with a refund
Feb. 21-22	Rodeo Days – no classes
Mar. 1	45 <sup>th</sup> Day (Census day) Non-attending students will be withdrawn from the course
Mar. 11-18	Spring Break – no classes
Apr. 4	Withdrawal deadline
May 6	Last day of regular classes for this course. <b>Last date to request a W grade in writing</b>
May 8-14	Final exam week

## CHM 130 Grading System/Policies

*Your final grade will be a weighted average of your work during the semester and is calculated as follows:*

<b>A</b>	=	<b>100-90%</b>
<b>B</b>	=	<b>89-80%</b>
<b>C</b>	=	<b>79-70%</b>
<b>D</b>	=	<b>69-60%</b>
<b>F</b>	=	<b>below 60%</b>

The actual percentage may vary based on a final class distribution, but will not be higher than these percentages. At most, the above stated percentages may vary by up to 5 points. I do not grade on a curve.

When calculating final grade averages, your lowest quiz grade, assuming you have taken all the quizzes, will be dropped. (Two quizzes if the number of quizzes is 12 or more). Since material that appears in quizzes also appears on exams, if your semester average for your exams is higher than your semester average for all the quizzes, then all your quizzes will be dropped.

If you have missed a significant number of quizzes, then your grade will be calculated on the basis of exams and the final exam only.

If you have taken all the quizzes and exams, your lowest exam score will be discounted by 50% so it will have a minimum effect on your grade average.

Any grades of "zero" assigned for cheating or plagiarism will not be dropped or discounted and will be calculated into your final average. If the ethics violation is considered severe, the "zero" can override all other grades in this course.

A grade of 70 or better on the final exam will guarantee that you will receive a grade no lower than a "C" in this course, provided you have completed all course requirements. Please note that the final exam is cumulative and obtaining a grade of 70 means that you need to understand the material from the entire semester's work.

If you miss the final exam, you will be assigned a grade of zero for the final exam.

Although quizzes generally help your grade point average, the exams and final exam carry a significant amount of weight toward your final average. **You must have a passing average for exams and the final exam to pass the course.**

An average less than 60 is a failing grade.

**For an integrated course:** You must have passing grades in both the lecture portion and in the lab portion of the course in order to get a passing grade.

My policy is that no one will miss a grade by one point. If your actual average falls at 89, and 90 is an "A", then your grade will be rounded up to a 90. An 88.9 will be a "B". The same applies to the other grade ranges.

**You are welcome, at any time of the semester, to stop in my office and review your course grade.**

### **Incomplete (I) grade:**

"I" grades must be requested in writing by the student. Final decisions regarding an incomplete grade are made by the instructor and are subject to review by the Department Chair and the Division Dean. Generally, the student must have successfully completed at least 2/3 of the course material to receive an "I" grade.

Incomplete grades are generally reserved for medical and family emergencies that are of significant duration or occur at a critical time during the semester, they are not a way to withdraw if you are failing the course. Please contact your instructor before the last week of class to be sure that there is sufficient time to consider your request.

An incomplete grade generally implies that a student has completed a substantial portion of the course and has shown sufficient **initiative to complete the course on his or her own**. The student will receive a copy of the standard "I" form filed with the grade. This form will detail specifically what must be done to complete the course. A student has one year to complete the required work, otherwise the grade automatically reverts to an "F."

An incomplete grade does **not** permit you to sit through the course a second time. There are liability issues regarding non-registered students in the classroom.

**Late Withdrawal grade:**

Your instructor has the ability to enter a late withdrawal grade (W) at the end of the semester as a final grade for the course if you request it and have not withdrawn by the normal two-thirds mark of the semester. Once final grades have been entered, you cannot retroactively request a D or F to be changed to a W.

You must request a W grade, in writing, no later than the last day of class. (Not final exam week.)

If you have not attended class, and have not withdrawn by the 2/3 semester date, your instructor will not honor a late withdrawal request.

Please be aware that a W may affect your financial aid or other funding. You are advised to check with the funding organization to make sure there are no adverse effects to a W grade.

**Final Grades:**

Students do not receive a grade transcript from the college mailed to their home address at the end of the semester. Students must log on to Banner Online Services to retrieve their grade information or may check grades by calling MAX 2000 at 206-4880. For privacy and security reasons, instructors may not post grades and may **NOT** give grades over the telephone.

## SOME SUGGESTIONS FOR SUCCEEDING IN CHEMISTRY

Chemistry is a complex subject. It includes a great number of abstract concepts along with mathematical manipulations of equations and data. **The material in this course is cumulative**, as you progress through the course, new material presented builds on earlier material previously covered. There is also a large vocabulary of technical terms.

As a college level course, the class moves through topics at a rapid pace with information supplementing the textbook presented in lectures. It is expected that students will read and review information in their textbooks and will consult additional sources (books, articles, and the Internet) to aid in learning and understanding course information. Because concepts and problem solving can be varied in many ways and be applied to different types of compounds and situations, **this is not a course where you can memorize course material** and solutions to specific problems.

Succeeding in chemistry requires **constant study and review** of class material since many concepts build upon previous material. **Problem solving**, actually working out problems, as listed in assignments, is essential to success in this course. This is not a course where one can just read over or cram information before a quiz or exam.

The following suggestions will be helpful in helping you to succeed in this course:

### 1. Always read the chapter in the textbook before it is covered in class.

Before a thorough reading, **scan the chapter(s)** to find out the kind of material covered. Look at any learning objectives or chapter outlines, the section headings, illustrations and tables, margin notes, and boxes containing relevant information and applications. Also look at the chapter summary and types of questions asked at the end of the chapter.

**Read the chapter.** This is technical information with its own vocabulary. You probably will not understand all the material after the first reading, it may take several readings and you may need to look up the meanings of occasional terms. *Make notations of anything you do not understand* in the textbook or on a separate sheet of paper - you will **not** remember them unless you write them down. It is in the lecture portion of the course where this material will be explained.

When necessary, go back to previous chapters and review pertinent information that forms the foundation of the current material.

### 2. Attend the lectures.

Each topic and chapter will be explained in lecture along with illustrations, relevant applications, supplementary material, and demonstrations. Important concepts will be stressed. Often, concepts will be explained in a different way from your textbook and they may be illustrated by demonstrations. In addition, relevant material and applications, not discussed in your textbook, will be presented in the lectures. Any and all of this material may appear on exams.

Keep your notes from your chapter reading handy during the lecture to check that all your questions or uncertainties are addressed. If you are unsure of any concept, ask a question.

If you miss a class, you may miss a significant amount of course material and explanations of concepts and problem solving techniques. Although some of the material from the previous class may be briefly reviewed in the following class, new material will be covered.

### 3. Ask questions.

The only *stupid questions* are those that are **not** asked. If you do not understand something, chances are that there are others with the same question - **ASK IT**, no one else will.

If you are really self-conscious about asking questions in class, then ask your instructor before or after class. Also, stop in your instructor's office during his/her office hours or make an appointment to meet with your instructor.

### 4. Keep your work organized.

Well organized material is easier to follow and understand and it aids in your understanding of course material. Organize your notes by topic and sub-topic or rewrite them in outline form. Make notations in your notes of things you do *not* understand. This organization is helpful when reviewing for quizzes and exams.

Good organization is especially helpful with problem solving. As you work out each problem, you should show the formula used or a concept map of the solution, identify what is being asked, and list the given data and additional factors or information needed. Substitute the proper terms into the formula and be sure to include the proper physical units. Do the arithmetic last. Use of the physical units in a problem provide a quick means for checking your results.

You will be asked to show organized set-ups for all calculations on quizzes and exams. If you are missing the formulas, the physical units, or any needed parts of the set-up for a calculation, you will be penalized by the loss of points.

**5. Try all the homework questions and problems.**

You must read and answer assigned questions. It is also essential that you physically work out assigned problems and calculations within a reasonably short time after they are covered in class so you will know if you have any difficulties with the material.

If you get stuck on a problem, no matter how little or how much you have done of it, *do not spend more than 10 minutes* with it, try another problem. Try the problem again, from scratch, the following morning or evening. If you are still stuck, then write a notation on your paper stating what your difficulty is (e.g. "what do I do next?"; "how do I use this item of data?", etc...). At the earliest possible opportunity, ASK your instructor or a tutor for help. **SAVE YOUR WORK** (including your rough notes) - it will give your instructor a starting point for an explanation and help you to see your error or difficulty.

**6. Study and review the course material on a regular basis.**

Try to study in short sessions. You will retain more information from several 10 or 15 minute study sessions than you will from one long session. Make up some cards or summary sheets listing items that you have difficulty remembering, carry them with you, and review them when you find yourself unoccupied (such as waiting for someone, standing in a line, etc...). It is also helpful to make up mnemonics for lists of items or terms, or for concepts.

Small study groups with several of your classmates may help in understanding course material and problem solving. Generally, at least one member of the study group will each topic.

**7. Get the addresses and telephone numbers of TWO classmates.**

If you miss a class, you can get the notes from one or both classmates. Study together, you will be surprised at how much you learn from each other.

One of the best ways to get help in the course is to talk to your instructor. Make an appointment with him/her and **keep it**.

**Caveats:**

**Your instructor will make every attempt to follow the above procedures and schedules, but they may be changed in the event of extenuating circumstances.**

**Students submitting assignments are advised to make copies for their own protection.**

**If you move during the semester, please file a change of address form at any PCC campus registration office.**