



# Pima Community College

## West Campus

## CHM 151IN General Chemistry I Syllabus for Fall 2012

### Course Information:

Course Prefix/Number: **CHM 151 IN**

Course Title: **General Chemistry I**

Semester: **Fall 2011**

CRN (Section Code): **12804, 12805**

Class Days/Times: **Lecture: MW 11:40 am – 1:30 pm**

Site/Room: **Rincon F-215**

Credit Hours: **5.0**

Teaching Format: **Integrated Lecture and 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](mailto:dkatz@pima.edu)

Web site: <http://www.chymist.com>

(Select Pima Chem Courses, then CHM 151 or General Chem Survival Manual)

Availability: **Office hours: MW 1:30-2:30 p.m.; TTh 10:30-11:30 a.m., 2:30-3:00 p.m.  
If I am not in the office, I may be in the laboratory**

### Instructional Materials:

**Required Text:** Brown, Theodore L., LeMay, H. Eugene, Jr., Bursten, Bruce E., **Chemistry: The Central Science**, 12<sup>th</sup> Ed., Pearson Education, 2011 **NOTE:** Get either the Pima C.C. Version with additional material by David A. Katz or the complete edition, not a Pima C.C. edition that is missing chapters. Make sure the edition includes the **Mastering Chemistry** program.

(Available at the West Campus bookstore and other academic bookstores in town. The PCC Bookstore can be accessed and books ordered via the Internet at [www.Pima.bkstr.com](http://www.Pima.bkstr.com).)

**Online Homework and Laboratory Program:** Mastering Chemistry (Included with textbook)

### Notes regarding the textbook and online homework system:

The textbook is used for **two semesters, CHM 151-152**. You should not be required to purchase another textbook at additional cost if you continue the chemistry course at this campus.

Mastering Chemistry, as packaged with the textbook, contains the complete textbook in ebook form. If you purchase Mastering Chemistry from another source, it may not contain the ebook. You will still be able to join the class and do all the assignments for the course.

(continued on the next page)

**Instructional Materials: (continued)**

Mastering Chemistry is valid for **two years** from the date of activation. It can be used with any chemistry course (including organic chemistry) that utilizes the Mastering Chemistry system. You should not be required to purchase any other online homework system at additional cost for CHM 151-152.

**Laboratory Manual:** Selegue, Thomas, and David a. Katz, **General Chemistry in Action**, 2<sup>nd</sup> Edition, Hayden McNeil, 2011

**A Note about the laboratory manual:**

The laboratory manual is designed to be used for both CHM 151 and CHM 152. You should not be required to purchase another laboratory manual at additional cost if you continue with the chemistry course at this campus.

**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 151".

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

**Course Description:****THIS COURSE HAS BOTH A MATH AND A CHEMISTRY PREREQUISITE:**

**Minimum Math prerequisite:** MAT 122 with a grade of C or better.

**Chemistry prerequisite:** completion of CHM 080 or CHM 130 with grade of C or better, or placement into CHM 151 on the Chemistry assessment test.

**IMPORTANT NOTICE:** By having completed the math and chemistry prerequisites you are assumed to have a working knowledge of algebra, basic mathematics, and problem solving techniques, including significant figures, exponents, and scientific notation, dimensional analysis, the construction of graphs and tables, and with the chemistry topics in Chapters 1 and 2 of the Chemistry textbook along with a working knowledge of chemical formula writing and nomenclature.

**Course Corequisite:** CHM 151LB

**CHEMISTRY 151** is an introduction to the foundations of chemistry for upper-level sciences and engineering. The content of this course includes both principles and problems in the areas of atomic structure, introductory nuclear chemistry, chemical bonding, reaction stoichiometry, behavior of gases, reactions in solutions, solution concentrations, and an introduction to thermochemistry.

The use of scientific calculators is permitted for all aspects of this course.

**Course Objectives:**

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

1. Apply the concepts associated with measurement, units, significant figures, dimensional analysis, etc. to chemistry related calculations.
2. Describe the scientific method in principle and practice.
3. Classify matter and its changes.
4. Demonstrate familiarity with the historical development of the atom, its component parts, atomic mass and isotopes.
5. Associate the wave-particle duality of the electromagnetic spectrum with the wave-particle view of the electron.
6. Describe the pertinent aspects of the quantum-mechanical view of the atom.
7. Identify the electron configuration of atoms and ions.
8. Demonstrate the ability to use the Periodic Table to extract a range of information including number of valence electrons, orbital information, metal/nonmetal characteristics, periodic trends and the reason for similarity in chemical characteristics.
9. Describe the concepts associated with ionic and covalent bonding. Predict the nature and formula of bonded atoms.
10. Draw Lewis Structures and determine the molecular shape for given compounds.
11. Determine the polarity of a given molecule.
12. Apply Valence Bond Theory to determine the hybridization of bonded atoms.
13. Balance and extract information from chemical equations.
14. Identify simple reaction types.
15. Predict solubility and write supporting equations.
16. Perform solution concentration calculations.
17. Perform stoichiometry calculations for a range of systems including limiting reagent and aqueous solutions.
18. Describe the thermodynamic variable of enthalpy.
19. Calculate reaction enthalpy's from Heats of Formation data.
20. Calculate the energy associated with temperature changes including the concept of calorimetry.
21. Describe and apply Kinetic-Molecular Theory
22. Describe the various intermolecular forces and identify their existence/function in a variety of systems.
23. Apply the Ideal Gas Law to systems of gases including the concept of gas mixtures.
24. Distinguish between ideal and non-ideal systems.
25. Describe the various properties associated with liquids, e.g. vapor pressure, surface tension, viscosity, etc.
26. Describe the concept of a solution.
27. Perform concentration calculations.
28. Calculate/describe the solution activity associated with colligative properties. (Optional)

## 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 is integrated by topic and does not necessarily follow the book in a chapter by chapter and page by page order. **You are expected to have read chapters and additional reading assignments before the material is discussed in lecture.**

Problem assignments list the problem sections at the end of each chapter. Applicable problems should be attempted and solved after methods of problem solving are demonstrated and explained in class. Answers to odd number problems are located in the back of the textbook. An optional student solutions manual is available.

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>Pre-Class Assignment</b> Math Review (You should be able to solve these problems to succeed in this course.)</p> <p>Significant Figures, Exponents, and Scientific Notation</p>	<p>Math Review (on web site)</p> <p>Significant Figures, Exponents, and Scientific Notation (on web site)</p>	<p>Math Review All problems</p> <p>Significant Figures, Exponents, and Scientific Notation All problems</p>
<p><b>1. Introduction and History</b></p> <p>a) Chemistry, life, and the universe b) Matter and its properties c) Scientific method d) Measurement and the SI system e) Temperature f) Density g) Significant figures h) Scientific notation i) Dimensional Analysis problem solving k) Element symbols</p> <p><b>Note:</b> This information will be treated as a review in class as it is part of the prerequisites for this course</p>	<p>Chapter 1 pages 2-31</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>Element Symbols (on web site)</p>	<p>Chapter 1 pages 31-37 1.1-1.10, 1.11-1.41 (odd nos.) 1.45-1.55 (odd nos.)</p> <p>Temperature All problems</p> <p>Problem Solving by Dimensional Analysis All problems</p>
<p><b>2. Atoms, Molecules and Intro to Nuclear Chemistry</b></p> <p>a) A History of Chemistry to 1800 b) The Atomic Theory c) Laws of definite composition and multiple proportions d) Dalton and atomic mass e) The electron f) The proton g) Rutherford and the nuclear atom h) The neutron i) Isotopes j) Atomic weights k) Atomic numbers l) History of the periodic classification m) The periodic law n) The periodic table o) Radioactivity p) Radioactive decay q) Nuclear stability r) Rates of radioactive decay s) Radioisotope dating t) Nuclear transformations u) Extending the periodic table v) Effects of radiation w) Applications of radioisotopes x) Intro to inorganic compounds y) Names and formulas of compounds z) Intro to organic compounds aa) Intro to functional group compounds</p>	<p>Chapter 2 Pages 38-68</p> <p>Chapter 21 Pages 874-893</p> <p>An Illustrated History of Alchemy and Chemistry (on web site)</p> <p>Formula Writing and Nomenclature (Appendix F and on web site)</p> <p>Nomenclature of Organic Compounds (Appendix G and on web site)</p> <p>Chapter 24 Pages 1004-1028</p> <p>Prospects for Further Considerable Extension of the Periodic Table (on web site)</p> <p>Web Elements Periodic Table <a href="http://www.webelements.com">http://www.webelements.com</a></p>	<p>Chapter 2 Pages 69-75 2.1-2.16, 2.17-2.79 (odd nos)</p> <p>Chapter 21 pages 909-914 21.1, 21.2, 21.5, 21.7- 21.21 (odd nos.), 21.27, 21.29, 21.35, 21.39</p> <p>Formula Writing and Nomenclature All problems</p> <p>Chapter 24 pages 1044-1047 24.1, 24.2, 24.13-24.17 (odd nos.) 24.21, 24.27, 24.29, 24.31, 24.33, 24.44, 24.45, 24.47</p>

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>3. Chemical Formulas, Reactions, and Moles</b></p> <ul style="list-style-type: none"> <li>a) Formula mass</li> <li>b) The Mole and Avogadro's number</li> <li>c) Percent composition</li> <li>d) Empirical and molecular formulas</li> <li>e) The meaning of a chemical equation</li> <li>f) Type of reactions</li> <li>g) Balancing equations</li> <li>h) Mass relationships in reactions</li> <li>i) Limiting reagents</li> <li>j) Theoretical and percent yields</li> <li>k) Reactions in solution</li> <li>l) Water as a solvent</li> <li>m) Electrolytes</li> <li>n) Solution terminology</li> <li>o) Percent</li> <li>p) Molarity</li> <li>q) Dilution</li> <li>r) Solution stoichiometry</li> <li>m) Intro to redox reactions</li> <li>s) The activity series</li> <li>t) Titrations</li> </ul>	<p>Chapter 3 pages 76-104</p> <p>Chemical Formulas and Formula Mass Calculations (on web site)</p> <p>Writing Chemical Equations (on web site)</p> <p>Chapter 4 pages 114-149</p>	<p>Chapter 3 pages 105-113 3.1, 3.3-3.7, 3.9-3.83 (odd nos.)</p> <p>Chemical Formulas and Formula Mass Calculations All problems</p> <p>Writing Chemical Equations All problems</p> <p>Chapter 4 pages 150-157 4.1-4.9, 4.11-4.89 (odd nos.)</p>
<p><b>4. Thermochemistry</b></p> <ul style="list-style-type: none"> <li>a) Definitions and units</li> <li>b) Heat and work</li> <li>c) Law of Conservation of Energy (The First Law)</li> <li>d) Enthalpy</li> <li>e) <math>\Delta E</math> and <math>\Delta H</math></li> <li>f) Calorimetry</li> <li>g) Specific heat</li> <li>h) Standard heats of formation</li> <li>i) Heat of reaction</li> <li>j) Hess's Law</li> <li>k) Foods and fuels</li> </ul>	<p>Chapter 5 pages 158-195</p>	<p>Chapter 5 pages 195-205 5.4, 5.6, 5.8, 5.11, 5.15, 5.27-5.79 (odd nos.), 5.83-5.87 (odd nos.)</p>
<p><b>5. Electronic Structure of Atoms and Periodicity</b></p> <ul style="list-style-type: none"> <li>a) Electromagnetic radiation</li> <li>b) Atomic spectra</li> <li>c) The quantum theory</li> <li>d) The photoelectric effect</li> <li>e) The Bohr model</li> <li>f) Electron waves</li> <li>g) The uncertainty principle</li> <li>h) The quantum mechanical atom</li> <li>i) Quantum numbers</li> <li>j) Energy levels and orbitals</li> <li>k) Electron distributions</li> <li>l) Magnetic susceptibility</li> <li>m) Hund's rule</li> <li>n) The periodicity of electron configurations</li> <li>o) Atomic Size</li> <li>p) Effective nuclear charge</li> <li>q) Ionization energy</li> <li>r) Ionic radii</li> <li>s) Electron affinity</li> <li>t) Atomic structure and reactivity</li> </ul>	<p>Chapter 6 pages 206-239</p> <p>Chapter 7 pages 248-279</p>	<p>Chapter 6 pages 240-247 6.1-6.10, 6.11-6.19 (odd nos.) 6.23, 6.25, 6.27, 6.33-6.43 (odd nos.) 6.47, 6.51, 6.53, 6.57, 6.61- 6.73 (odd nos.)</p> <p>Chapter 7 pages 279-287 7.2-7.6, 7.9-7.81, (odd nos.)</p>

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>6. Chemical Bonding and Molecular Geometry</b></p> <ul style="list-style-type: none"> <li>a) Lewis dot symbols of elements</li> <li>b) The ionic bond</li> <li>c) Lattice energy: The Born-Haber Cycle</li> <li>d) The covalent bond</li> <li>e) Multiple bonds</li> <li>f) The octet rule</li> <li>g) Bond distances and bond strength</li> <li>h) Bond polarity</li> <li>i) Electronegativity</li> <li>j) Dipole moments</li> <li>k) Resonance</li> <li>l) The metallic bond</li> <li>m) Lewis structures</li> <li>n) Formal charge</li> <li>o) Bond energies from Lewis structures</li> <li>l) Molecular shapes</li> <li>m) VSEPR Theory</li> <li>n) Polarity of molecules</li> <li>o) Valence Bond Theory</li> <li>p) Hybrid orbitals</li> <li>q) Intro to Molecular orbital theory</li> <li>r) Metallic bonds</li> </ul>	<p>Chapter 8 Pages 288-322</p> <p>Chapter 9 pages 330-373</p> <p>Chapter 12 Pages 476-481</p>	<p>Chapter 8 pages 322-329 8.1, 8.2, 8.4, 8.5, 8.7-8.75 (odd nos.)</p> <p>Chapter 9 pages 373-381 9.1-9.10, 9.11-9.73 (odd nos.) 9.77, 9.79, 9.81, 9.85</p>
<p><b>7. Gases, Liquids, Solids and Intermolecular Forces</b></p> <ul style="list-style-type: none"> <li>a) Gases vs. liquids vs. solids</li> <li>b) Pressure</li> <li>c) Boyle's Law</li> <li>d) Charles' Law</li> <li>e) The combined gas law</li> <li>f) The Ideal Gas Law</li> <li>g) Density and Molar mass calculations</li> <li>h) Avogadro's Law: Stoichiometry in gas reactions</li> <li>i) Dalton's Law</li> <li>j) Graham's Law</li> <li>k) The Kinetic-Molecular Theory</li> <li>l) Real gases</li> <li>m) Intermolecular forces</li> <li>n) Hydrogen bonding</li> <li>o) Surface tension</li> <li>p) Change of phase</li> <li>q) Energy and phase change</li> <li>r) Vapor pressure</li> <li>s) Boiling and freezing points</li> <li>t) Liquid crystals</li> <li>u) Classification of solids</li> <li>v) Crystal structure</li> <li>w) X-ray diffraction</li> <li>x) Types of crystals</li> <li>y) Alloys</li> <li>z) Phase changes and phase diagrams</li> <li>aa) Polymers</li> <li>bb) Nanomaterials</li> </ul>	<p>Chapter 10 pages 382-414</p> <p>Chapter 11 Pages 424-452</p> <p>Chapter 12 Pages 462-503</p>	<p>Chapter 10 pages 415-423 10.1-10.12, 10.13-10.99 (odd nos.)</p> <p>Chapter 11 pages 453-461 11.1-11.8, 11.9-11-11.71 (odd nos.)</p> <p>Chapter 12 Pages 504-511 12.1-12.6, 12.7-12.15 (odd nos.) 12.23, 12.27-12.49 (odd nos.) 12.63, 12.65, 12.67</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. These percents may vary based on the number of quizzes and exams given during the semester.

Quizzes (Includes Mastering Chemistry) .....	20%
Exams .....	40%
Final Exam .....	20%
Lab .....	20%

## CHM 151IN 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 along with proper set-ups are 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.

### Computer

This course is taught as a web-enhanced course. You must have access to a computer. This syllabus, along with reading material, PDFs of my PowerPoint presentations, links to course-related 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 151. 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 or in reference books.

### Quizzes

There will be frequent quizzes during the semester. All quizzes are announced in class. Each quiz has a time limit. Each quiz will cover a specific topic or assignment. 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**

This is a college level course with college level 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 are part of those assigned on the syllabus or appeared on the 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.

There is no curve applied to any exam.

I normally do an in-class review approximately one week or one weekend before the 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.

The Department of Chemistry utilizes the American Chemical Society (ACS) General Chemistry 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 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 final exam utilizes a confidential test booklet. Any writing in the test booklet will reduce your final score by 15 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.

### **Mastering Chemistry**

The Mastering Chemistry tutorial, text editing, review and assessment program is bundled with your textbook. This program will be used with both the lecture and laboratory portions of this course. You will be given instructions in class on how to log onto the program and join the class.

A separate assignment list will be supplied for Mastering Chemistry homework and assessments.

Mastering Chemistry homework and assessments will be included as an additional exam in your average for the course.

### **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**

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 deadline, late papers, if accepted, 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 and time. **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 A QUIZ OR EXAM 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.

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.

All alternate exams or quizzes are given in the Testing and Assessment Center. Exams given in the testing center will still have a time limit. Quizzes must be started no later than 15 minutes after normal class start time on the same day as the in-class quiz.

### **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 an F for the course.

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 and will be treated as such.

Cell phones are not permitted to be out on desk tops or to be used during exams or quizzes. All laptop computers must be turned off and closed. Violation of this policy will result in a grade of zero for that quiz or exam.

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.

Students who have received zeros for cheating will not be given W grades.

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, attendance is required for this course.**

Most of the important material that will be on the exams and quizzes is discussed in class. **Not everything is in the textbook.** Relevant information and applications of course material, both in PowerPoint presentations, as well as demonstrations, are also presented in class. 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 and all associated work such as a laboratory notebook and laboratory reports.

For an integrated course that meets in the laboratory, absence from class also counts as absence from laboratory. Also, leaving class early, without completing a laboratory experiment, will be counted as missing the laboratory experiment.

Missed laboratory experiments may be assigned a grade of zero.

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.

Extended absence can result in your instructor administratively withdrawing you from the class. A W grade may affect your student aid or any scholarships.

### **Extra Credit**

**There is no extra credit** other than extra credit problems and questions that may be on hour exams

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.

Lateness, on the day of a quiz or exam, does not allow you any extra time to complete that quiz or exam.

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.

If you are late for the laboratory class and have missed introductory information and safety precautions for the experiment, you will not be admitted to the lab.

### **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.

## **Fall 2012 Calendar of Important Dates**

Aug. 22	Fall classes begin
Sept. 3	Labor Day Holiday (college closed)
Sept. 4	Last day to withdraw with a refund
Oct. 5	45 <sup>th</sup> day (Non-attending students may be dropped from the course.)
Nov. 7	Withdrawal deadline
Nov. 12	Veterans Day (College closed)
Nov. 22-25	Thanksgiving Holiday (College closed)
Dec. 7	Last day of regular classes – If you want a late withdrawal grade, you must request it, in writing, by today.
Dec. 10-16	Final exam week

## CHM 151IN Grading System/Policies

*Your final grade will be a weighted average of your work during the semester and are 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, assuming you have taken all the quizzes (a total of 6 or more), your lowest quiz grade will be dropped. Also, 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 the lecture portion of this course. 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.

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.** Your laboratory grade will not change a failing course grade to a passing grade.

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 your class meeting time.** (Not the final exam week.)

If you have not attended class, or stopped attending 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, class PowerPoints, related readings or Internet links, and will consult additional sources (books, articles, and the Internet) to aid in learning and understanding course information. Because questions and problem solving can be varied in many ways and be applied to different types of compounds and situations, you need to learn how to think and apply concepts, **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, you must be able to understand and apply course concepts to different than textbook situations.

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.

In addition, your instructor may use PowerPoint presentations. These presentations may be posted on the Internet. PowerPoint presentation may contain additional information not in the textbook and may only contain basic problem solving as many instructors prefer to solve problems in detail on the white board or chalk board in class.

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

PowerPoint presentations are used in class. These are reproduced in PDF format on the course web page. Review them for additional explanation of concepts and visualization of some phenomena. PowerPoint presentations do not contain examples of solved problems.

### 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.

Just because you did not pass a quiz or an exam, that is not a reason to cut the next class or two. Missing classes sets you up for failing the course.

### 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 solving a problem provides a quick means for checking your results.

You will be required to show clear 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.

Problems on exams may ask you to apply your problem solving skills to an unfamiliar situation or to combine information from previous topics. These problems will require thinking, not memorization. You will not be able to solve problems on quizzes and exams if you wait until the night before the test to study and solve problems.

#### 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. Studying for a full day, or a weekend, in one long session, will not help you master the information from this course, you need time to digest information. 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 understand 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. Your instructor does not maintain a set of comprehensive course notes which you can copy.

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.**