



# PimaCommunityCollege

## West Campus

## CHM 152IN General Chemistry II Syllabus for Spring 2013

### Course Information:

Course Prefix/Number: **CHM 152IN**

Course Title: **General Chemistry II**

Semester: **Spring 2013**

Credit Hours: **5.0**

CRN (Section Code): **22605** Class Days/Times **MW 11:40 am-1:30 pm**  
**24781** Class Days/Times **MW 11:40 am-1:30 pm**  
**21507** Class Days/Times **Th 5:40-8:50 pm**

Site/Room: **F-219**  
Site/Room: **F-219**  
Site/Room: **K-205**

### Instructor Information:

Name: **David A. Katz**

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

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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 CHM 152)

Availability: **Office hours: Office Hours: Office hours: MW 1:30- 3:00 TTh 10:30-11:30; 2:30- 3:00**

**If I am not in the office, before or after class, I may be in the lab  
I am also available by appointment.**

### 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:** The Pima C.C. Version with additional material by David A. Katz or the complete edition, is preferred. A Pima C.C. edition that is missing chapters may also be used. Make sure the edition includes the **Mastering Chemistry** program. **Note:** This textbook is used for both CHM 151 and 152.

If you have the previous textbook by Kotz, John C., Treichel, Paul M., and Townsend, John R., **Chemistry & Chemical Reactivity**, 7<sup>th</sup> Ed., Thomson-Brooks/Cole, 2009, there is a topic outline on the course web site. You are not required to purchase another textbook.

If you have the textbook by McMurry, John E., and Robert C. Fay, **General Chemistry: Atoms First**, please contact your CHM 151 instructor for a CHM 152 topic list. You may use this textbook for CHM 152 and you are not required to purchase another textbook.

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### Instructional Materials: (continued)

**Online Homework and Laboratory Program:** Mastering Chemistry (Included with textbook or available separately online)

**Note:** Mastering Chemistry is valid for 2 years from the date of activation at no additional charge. The version of Mastering Chemistry bundled with the textbook also includes the e-book version of Brown and LeMay.

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

**Note:** This laboratory manual is designed for use in CHM 151 and CHM 152.

**Important:** 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 some additional readings and references, is also available under the submenus "Pima Chem Courses" and "Chem 152".

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

### Course Description:

**CHEMISTRY 152** is a continuation of CHM 151, 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 solutions, chemical kinetics, equilibrium, acids and bases, thermodynamics, electrochemistry, nuclear chemistry, and introductory organic chemistry and polymers.

**This course requires an understanding of the material from CHM 151.** That includes topics such as formula writing and nomenclature of compounds, completing and balancing chemical equations, stoichiometry calculations, solution terminology and Molarity, and bonding and molecular structure.

Problem solving is a necessary part of the course. It is expected that you can solve problems using a clear and organized set-up including all the proper physical units.

It is important that you are able to do algebraic calculations, including setting up and solving the quadratic equation.

You must be able to draw and label a proper graph or to construct and label graphs using a computer program such as Microsoft Excel.

### Course Objectives:

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

1. Define the rate of a reaction and the rate law, determine the components of the rate law, and describe the effects of concentration, temperature and catalysts on the rate of a reaction.
2. Write and calculate equilibrium constants for a chemical reaction, calculate equilibrium concentrations from initial concentrations, apply Le Châtelier's principle to a chemical reaction and predict how changes in concentration, temperature, pressure, and volume influence the equilibrium system.
3. Distinguish between Arrhenius and Bronsted acids and bases, identify conjugate acid/base pairs, predict the direction of a neutralization reaction, determine dissociation constants ( $K_a$ ,  $K_b$ ), pH and pOH in aqueous solutions, and relate molecular structure to acid strength.
4. Define equilibria of acid/base buffer systems, describe buffer capacity, buffer range, common ion effect, and discuss acid/base titration curves.
5. Define the first and second laws of thermodynamics, predict the change in entropy for a chemical reaction, define Gibbs free energy,  $\Delta G$ , relate the sign of the free energy, enthalpy and entropy to the spontaneity of a chemical system, relating Gibbs free energy,  $\Delta G$ , and the equilibrium constant  $K$ .
6. Balance redox equations, use redox potentials to determine the relative strength of oxidizing and reducing agents, describe the construction and functioning of voltaic and electrolytic cells, determine the cell potential, and discuss applications of electrochemical principles in batteries, corrosion, and electrolysis.
7. 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 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
<b>1. REVIEW: Intermolecular Forces</b> <ol style="list-style-type: none"> <li>Intermolecular forces</li> <li>Dispersion forces</li> <li>Dipole-dipole interactions</li> <li>Hydrogen bonding</li> <li>Ion-dipoles forces</li> <li>Viscosity</li> <li>Surface tension</li> <li>Change of state</li> <li>Energy and phase changes</li> <li>Vapor pressure and evaporation</li> <li>Phase diagrams</li> </ol>	Chapter 11 pages 424-453  Chapter 12 Pages 496-502	Chapter 11 pages 453-461 11.1-11.7, 11.9-11.29 (odd nos.) 11.33-11.63 (odd nos.)  Chapter 12 Pages 503-511 12.7-12.15 (odd nos.) 12.31,, 12.35, 12.37, 12.39, 12.43
<b>2. Solutions</b> <ol style="list-style-type: none"> <li>Types of solutions</li> <li>Nonelectrolytes vs electrolytes</li> <li>The solution process</li> <li>Heat and the solution process</li> <li>Temperature and solubility</li> <li>Pressure and solubility – Henry's Law</li> <li>Concentration units: %, ppt, ppm, ppb</li> <li>M, m, X</li> <li>Colligative properties</li> <li>Freezing point depression</li> <li>Boiling point elevation</li> <li>Osmotic pressure</li> <li>Colloids</li> </ol>	Chapter 13 Pages 512-547	Chapter 13 Pages 548-555 13.1-13.12, 13.13-13.89 (odd nos.)
<b>3. Kinetics and Equilibrium</b> <ol style="list-style-type: none"> <li>Reaction rates</li> <li>Factors affecting rate</li> <li>Rate laws</li> <li>Concentration and rate</li> <li>Order of a reaction</li> <li>Reaction half-life</li> <li>Effects of temperature</li> <li>Collision theory</li> <li>Activation energy</li> <li>The Arrhenius equation</li> <li>Catalysis</li> <li>Reaction mechanisms</li> <li>The dynamics of the equilibrium condition</li> <li>The Law of Mass Action</li> <li>The equilibrium constant</li> </ol>	Chapter 14 Pages 556-597  Chapter 15 Pages 610-641	Chapter 14 Pages 597-609 14.1-14.16, 14.17-14.95 (odd nos.)  Chapter 15 Pages 642-649 15.1-15.11, 15.13-15.67 (odd nos.)

Lecture Topics	Reading Assignment	Problem Assignment
<p><b>3. Kinetics and Equilibrium</b> (continued)</p> <ul style="list-style-type: none"> <li>p) What the equilibrium quotient tells us</li> <li>q) <math>K_p</math> vs <math>K_c</math></li> <li>r) Equilibrium calculations</li> <li>s) Heterogeneous equilibria</li> <li>t) Le Châtelier's Principle</li> </ul>		
<p><b>4. Acids, Bases, and Ionic Equilibria</b></p> <ul style="list-style-type: none"> <li>a) Properties of acids and bases</li> <li>b) The Arrhenius theory</li> <li>c) The Brønsted Theory</li> <li>d) Conjugate acid-base systems</li> <li>e) <math>K_w</math></li> <li>f) pH and pOH</li> <li>g) Strong and weak acids and bases</li> <li>h) Dissociation of weak acids and bases</li> <li>i) <math>K_a</math> and <math>K_b</math></li> <li>j) Polyprotic acids</li> <li>k) Acid-base properties of salts</li> <li>l) Hydrolysis</li> <li>m) The leveling effect</li> <li>n) The Lewis theory</li> <li>o) The common ion effect</li> <li>p) Buffers</li> <li>q) The Henderson-Hasselbalch Equation</li> <li>r) Acid-base titrations</li> <li>s) Indicators</li> <li>t) Precipitation reactions</li> <li>u) <math>K_{sp}</math></li> <li>v) pH and solubility</li> <li>w) Complex ions</li> </ul>	<p>Chapter 16 pages 650-693</p> <p>Chapter 17 Pages 702-740</p> <p>Notes on Acids and Bases, Parts 1 and 2 (on web site)</p>	<p>Chapter 16 pages 694-701 16.1-16.10, 16.11-16.99 (odd nos.)</p> <p>Chapter 17 Pages 740-747 17.1-17.12, 17.13-17.73 (odd nos.)</p>
<p><b>5. Chemistry of the Environment</b></p> <ul style="list-style-type: none"> <li>a) The atmosphere</li> <li>b) The ozone layer</li> <li>c) Air pollution</li> <li>d) Water</li> <li>e) The water cycle</li> <li>f) Ocean water vs. river water</li> <li>g) Water pollution</li> <li>h) Water purification</li> </ul>	<p>Chapter 18 Pages 748-777</p>	<p>Chapter 18 Pages 777-783 Problems to be assigned in class.</p>
<p><b>6. Thermodynamics</b></p> <ul style="list-style-type: none"> <li>a) Spontaneous changes</li> <li>b) Reversible and irreversible processes</li> <li>c) The Second Law</li> <li>d) Entropy</li> <li>e) Microstates</li> <li>f) The Third Law</li> <li>g) Free energy</li> <li>h) Free energy and equilibrium</li> </ul>	<p>Chapter 19 Pages 784-817</p>	<p>Chapter 19 Pages 817-825 19.1-19.4, 19.9, 19.11, 19.15, 19.25-19.85 (odd nos.)</p>

Lecture Topics	Reading Assignment	Problem Assignment
<b>7. Electrochemistry</b> a) Metallic and electrolytic conduction b) Oxidation-reduction b) Half reactions and redox c) Electrochemical cells d) Voltaic cells e) Standard cell potentials f) The Nernst equation g) Free energy and electrical work h) Electrolysis i) Commercial cells and batteries j) Corrosion	Chapter 20 Pages 826-865	Chapter 20 Pages 865-873 20.1-20.4, 20.6-20.8, 20.11, 20.13-20.95 (odd nos.)
(If time permits) <b>8. Nuclear Chemistry</b> a) Radioactivity b) Radioactive decay c) Nuclear stability d) Kinetics of radioactive decay e) Radioisotope dating f) Nuclear transformations g) Extending the periodic table h) Effects of radiation i) Applications of radioisotopes j) Nuclear reactors k) Making a nuclear device	Chapter 21 Pages 874-909	Chapter 21 Pages 909-915 Problems to be assigned in class

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

## Chem 152 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 or set of problems 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 (data) and variables, the proper number of significant figures, 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.

### Mastering Chemistry

The Mastering Chemistry tutorial, text editing, review and assessment program is bundled with your textbook. This program is active for 2 years from the date of activation at no additional cost. You can join any class that uses the Mastering Chemistry program.

Mastering Chemistry 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.

Separate assignments for Mastering Chemistry homework and assessments are accessed online. The problems come from the end-of-chapter problems in the textbook along with questions and problems from a test bank.

Mastering Chemistry does contain tutorials as well as direct links to the textbook.

If you purchased Mastering Chemistry bundled with the textbook, it contains the electronic version of the entire textbook. If you purchased Mastering Chemistry independent of the textbook, the ebook is available at an additional charge.

Mastering Chemistry homework and assessments will be included in your quiz average for the course.

### 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 during any quiz or exam.

### Computer

This course is taught as a web-enhanced course. **You must have access to a computer.** This syllabus, topic guides for previous textbooks, any additional reading material, PDF files of PowerPoint presentations used in class, and problem sets are available on my web site at <http://www.chymist.com>. Go to the *Pima Chem Courses* link on the left-hand menu and then to the Chem 152 link. Reading material, review material, and problem sets are located under the **General Chemistry Survival Manual** link on the home page of the web site.

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. 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 a quiz, you do not get any credit for it. It will be the quiz that is dropped. 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 four exams during the semester. The exams cover 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).

- The first exam will cover Solutions and Intermolecular Forces
- The second exam will cover Kinetics and Equilibrium
- The third exam will cover Acids, Bases and Solubility Equilibrium
- The fourth exam will cover Thermodynamic, Oxidation-Reduction, and Electrochemistry

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. (Exams in the testing center are limited to no more than 3 hours.)

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.

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.

### **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 may be on the 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.

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 will be downgraded by 10 points the rest of the day after class is over. An additional 15 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 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 20 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, 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 or discounted.

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.

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.

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, 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. PowerPoint presentation, available in PDF form on the web site, are outlines and are not detailed and do not contain worked out problem examples.

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.

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.

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 problem (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 last day of classes (not final exam week), 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

### Chem 152 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>=</b>	<b>100-90%</b>
<b>B</b>	<b>=</b>	<b>89-80%</b>
<b>C</b>	<b>=</b>	<b>79-70%</b>
<b>D</b>	<b>=</b>	<b>69-60%</b>
<b>F</b>	<b>=</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 5 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 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."

**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** (email request accepted), **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. There is also a large vocabulary of technical terms. Most important, **CHM 152, General Chemistry II, requires that you understand and are able to utilize all the information from CHM 151, General Chemistry I, in topics covered in this course. Take time to review CHM 151 information.**

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.**