



# PimaCommunityCollege

## West Campus

## CHM 121IN Chemistry and Society Syllabus for Spring 2013

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### Course Information:

Course Prefix/Number: **CHM 121IN**

Course Title: **Chemistry and Society**

Semester: **Spring 2013**

CRN (Section Code): **22932**

Class Days/Times: **TTh 11:30 a.m.-2:10 p.m.**

Site/Room: **SCI K207**

Credit Hours: **4.0**

Teaching Format: **Integrated Lecture-Laboratory**

### Instructor Information:

Name: **David A. Katz**

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

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

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

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

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

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

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

### Instructional Materials:

**Required Text:** There is no required textbook for this course. **You must have access to a computer with Internet connections.** Course material or appropriate links to Internet sites will be available on the course web page at <http://www.chymist.com> under the heading **Pima Chem Courses** (left-hand menu) and then **Chem 121** (Left-hand menu). Some material will be supplied in class on a CD-ROM. The web files are in PDF format and require Adobe Acrobat Reader (available for free at <http://www.adobe.com>)

**Laboratory Manual:** **Laboratory Experiments for Chem 121**, Pima Community College. **The experiments are available for download from the course web page** at <http://www.chymist.com> - Pima Chem Courses (left-hand menu) - Chem 121 (Left-hand menu) The web files are in PDF format and require Adobe Acrobat Reader (available for free at <http://www.adobe.com>)

**Laboratory Reference and Safety Manual:** Katz, David A., **The General Chemistry Laboratory Survival Manual**, Hayden McNeil Publishing Co., 2006 (Textbooks are available at the West Campus bookstore. The PCC Bookstore can be accessed and books ordered via the Internet at [www.Pima.bkstr.com](http://www.Pima.bkstr.com).)

### Instructional Materials (continued)

**Explore the World of Earth Science** An Internet link to investigations and visualizations designed to accompany *Earth Science*, a high school textbook authored by Spaulding and Namowitz and published by McDougal Littell, is provided on the CHM 121IN web page. The Web site was developed by TERC, a non-profit educational research and development firm in collaboration with McDougal Littell.

**CD-ROM's** – Instructor Supplied in class at no charge

Science and Science Fiction – Short stories and science articles

Forensics – Hands-on forensics with additional readings

### Course Description:

**CHM 121IN** is an integrated lecture-laboratory course that examines applications of the methods and theories of chemistry to social questions and “headline stories”. Students will explore, through discussions and hands-on activities and experiments, how current scientific information is applied to atmospheric and environmental issues, nuclear chemistry, radiocarbon dating and archaeological research, fuels and energy, alternative energy sources, and other selected topics in the news occurring during the duration of the course, or from instructor selected topics such as the science in science fiction books and films, crime investigation techniques, and nanotechnology. No previous chemistry course is required.

The major topics of discussion will come from a number of varied sources such as the Internet, newspapers, magazines such as *Time*, *Newsweek*, *Discover*, *Smithsonian*, *Scientific American*, etc..., television programs such as *Nova*, and specials on the *Science* and *Discovery* channels.

Some problem solving is a necessary part of this course. Students should review basic mathematics and algebra with emphasis on exponents and roots, manipulations of algebraic equations, and construction of graphs and tables. The use of scientific calculators is permitted for all aspects of this course. If needed, math review sessions will be scheduled by arrangement.

This is an integrated course. Classes are held in a chemistry laboratory and will integrate lecture, discussion, activities, and experiments in each class session.

This course satisfies one semester of a general education laboratory science requirement.

### Course Objectives:

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

1. Classify all samples of matter as an element, compound or mixture, all with an intrinsic atomic nature.
2. Describe the arrangement of the basic subatomic particles within the atom which lead to differences in mass, stability and reactivity of the elements.
3. Describe how the properties of elements leads to their placement on the periodic table of the elements.
4. Understand the differences between inorganic and organic compounds and be able to interpret simple chemical formulas.
5. Describe the composition and behavior of gases in the atmosphere and aspects of air and water pollution.
6. Discuss the interaction of air and water chemistry with El Nino and climatic change.
7. Describe radioactivity in terms of atomic nuclear decay and the measurement and societal impact of radiation and nuclear power plants.
8. Discuss the science of fuels, energy, and alternative energy sources and resources.
9. Discuss current science problems and potential problems of the future.

## Course Outline

The following outline presents topics, activities, and experiments in the order they will be discussed in class. Although each topic is listed by specific date, there may be some changes due to extended class discussions or activities/experiments. **Applicable readings or links to reading material is available on the course web site** in addition to specific readings specified in the course outline, below. Science Fiction readings and Forensics readings and experiments will be supplied on CD-ROM. Problem assignments or calculations will be covered in context with activities and/or laboratory experiments.

Class topics are subject to change as issues become current in the news.

**Laboratory experiments must be downloaded and read before class and the appropriate sections on laboratory techniques should be read before class.** You will not be given copies of laboratory experiments in class.

Date	Topic	Lab Experiment and/or Activities
Jan. 15	Welcome to class  Review syllabus and course requirements.  Metric System (reading material on web site) Temperature (reading material on web site)  Reading Assignment for next class: Explore the World of Earth Science (link on web site), Investigations page. Unit 7: Space Could Mars Support Life	No laboratory activities
Jan. 17	Are we alone? Elements and life in the universe and how they are detected Life on Mars (and elsewhere in the universe) Origin of the elements Detecting elements in space  Reading Assignment for next class: Element Symbols, Web site.	Lab Experiment: Build a Spectroscope  Lab Techniques: (Read for next class) <b>The General Chemistry Laboratory Survival Manual</b> Safety in the Academic Lab, Chapter 1 The MSDS, Chapter 2
Jan. 22	Atoms and elements Element symbols The periodic table  Reading Assignment for next class: Formula Writing (web site)	Laboratory Orientation Check-in Lab safety  Lab Techniques: <b>The General Chemistry Laboratory Survival Manual</b> Laboratory Glassware and Apparatus, Chapter 4 Your Laboratory Drawer, Chapter 5
Jan. 24	Quiz (in-class): Element names and symbols  Chemical bonds Inorganic compounds and nomenclature  Reading assignment for next class: Nomenclature of Organic Compounds (web site)	Laboratory Safety Test  Lab experiment: An Experiment in Alchemy: copper, silver, gold  Lab Techniques: <b>The General Chemistry Laboratory Survival Manual</b> Laboratory Glassware: Its use, Care and Cleaning, Chapter 6 Volumetric Glassware: Graduated Cylinders, Burets, and Pipets, Chapter 7 The Bunsen Burner, Chapter 8 Mass Determination with Laboratory Balances, Chapter 9

Date	Topic	Lab Experiment and/or Activities
Jan. 29	Take-home quiz: Names and formulas of inorganic compounds  An introduction to organic compounds	Lab experiment: Preparation of Synthetic Rubber (includes Preparation of a rubber ball from latex)
Jan. 31	Take-home quiz: Names and structures of organic compounds  The nucleus and nuclear stability of atoms and isotopes	Lab experiment: Nuclear chemistry Exp. 1. Determination of the Background Radiation Exp. 2. Determination of the Type of Radiation Exp. 3. Inverse Square Law Exp. 4. Determination of Half-life  NOTE: Data will be shared between groups
Feb. 5	Radioactivity, its applications and chemical and biological effects Radioactivity: Our Nuclear heritage Nuclear weapons Radiation we are exposed to every day (on web site)	Film: The Atomic Café  Films to be viewed at home (links on web site): A Tale of Two Cities Hiroshima, Hirohito, & the Rising Sun Hiroshima-Nagasaki, August 1945
Feb. 7	The atmosphere Gases The greenhouse effect  Reading assignment: Our atmosphere (web site) Our Changing Environment (web site) Explore the World of Earth Science (link on web site), Investigations page. Chapters 17-21 and Unit 5: Atmosphere and Weather	Lab Experiment: How Do We Affect the Quality of Our Atmosphere: Gases Simulating the Greenhouse Effect Cloud in a bottle Crush a can with air pressure Simulated sunset (Instructor Demonstration)
Feb. 12	Air pollution Acid rain: acids, bases, pH and the environment  Reading assignments: Our Ozone Shield (web site) El Nino and climatic change (web site) Explore the World of Earth Science (link on web site), Investigations page. Unit 6: Can We Blame El Nino for Wild Weather?	Lab Experiment: How Do We Affect the Quality of Our Atmosphere: (continued) Acids, bases and pH Acid rain simulation (Instructor Demonstration) Effect of acid rain on our environment (Minerals and acid rain)
Feb 14	Ozone depletion and Chlorofluorocarbons What have we done to our environment?	Lab Experiment: Sunscreens: Preparation and Evaluation  NOTE: Data will be shared between groups  Lab Techniques: <b>The General Chemistry Laboratory Survival Manual</b> The Spectronic 20 UV-Visible Spectrophotometer, Chapter 13
Feb. 19	Water and water pollution  Reading assignment: Explore the World of Earth Science (link on web site), Investigations page. Chapters 13-15, 22-24	Lab Experiment: Testing the Waters (Samples will be provided. You may bring in a 1 Liter [1 quart] sample of water from home to test.)  NOTE: Data will be shared between groups  Lab Techniques: <b>The General Chemistry Laboratory Survival Manual</b> The pH Meter, Chapter 14
Feb. 21	Rodeo Days – no class	

Date	Topic	Lab Experiment and/or Activities
Feb. 26	The Earth: Soil structure and minerals Minerals and mining  Reading Assignment: Explore the World of Earth Science (link on web site), Investigations page. Chapters 6, 12	Lab Experiment: Earth Science: Edible Soil Profile  Lab Experiment: Soil Analysis
Feb. 28	Energy sources and resources: Natural resources: coal, oil, and natural gas Conservation of resources: recycling, reuse Nuclear energy and nuclear waste	Lab Experiment: Earth Science: (continued) Mining for natural resources  Lab Experiment: Properties of iron  Lab Experiment: Extracting a metal from its ore
Mar. 5	Energy sources and resources: (continued) Alternative sources: wind power, hydroelectric, geothermal, solar power.	Lab Experiment: Landfills and Recycling  Lab Experiment: Recycling a metal into a chemical compound: The preparation of Alum  Crystal growing (A homework assignment)
Mar. 7	Energy from chemical reactions: Electrochemical cells and batteries  Science Fiction CD will be given out today	Lab Experiment: Build a wind turbine
Mar. 11-18	Spring Break – no classes this week	
Mar. 19	Energy from chemical reactions (continued) Fuel cells Solar energy	Lab Experiment: The synthesis of Biodiesel from vegetable oil  Lab Experiment: Build a wind turbine (continued) Complete construction and testing as needed
Mar. 21	Nanotechnology  Viewing assignment: What is Nanotechnology?	Lab Experiment: Batteries (Part 1) The Voltaic Pile The Electrochemical Cell The Lemon Cell
Mar. 26	Nanotechnology Discussion of articles/information  <b>Report 1 is due today</b>	Lab Experiment: Batteries (Part 2) The Storage Cell Construct a Dry Cell Battery  Lab Experiment: Construction of a Microscale Fuel Cell
Mar. 28	The science in science fiction Readings and discussions of the science behind the stories	Lab Experiment: Synthesis of Aqueous Ferrofluid Nanoparticles (a magnetic fluid)  Lab Experiment: Synthesis of Cholesteryl Ester Liquid Crystals (a nanotechnology project)
Apr. 2	The science in science fiction (continued) Readings and discussions of the science behind the stories	Lab Experiment: Titanium Dioxide Raspberry Solar Cell (A nanotechnology project)
Apr. 4	Forensic Science: Crime Scene Investigation Material Evidence	Lab Experiment: Faces: Identification of a suspect
Apr. 9	No class – Instructor away for a conference	
Apr. 11	Forensic Science: Fingerprinting	Lab experiment: Fingerprinting Fingerprints Dusting and lifting of fingerprints Cyanoacrylate development
Apr. 16	Forensic Science: Analysis of Inks and dyes Handwriting analysis	Lab Experiment: Ink Analysis  Lab Experiment: Handwriting Analysis

Date	Topic	Lab Experiment and/or Activities
Apr. 18	Forensic Science: Fibers and fiber identification Hair identification	Lab Experiment: Fibers and fiber identification: TIS fabric stain  Lab Experiment: Hair Analysis
Apr. 23	Forensic Science Blood and blood drops	Lab Experiment: Blood drop studies
Apr. 25	Forensic Science: Drugs Poisons  <b>The 2<sup>nd</sup> report is due today</b>	Lab Experiment: Drug Testing of Some Over-The-Counter Drugs
Apr. 30	Forensic Science DNA	Lab Experiment: DNA Isolation  Lab Experiment: DNA Identification
May 2	Forensic Science DNA	Lab Experiment DNA Identification (continued)
May 7	Topic to be announced	
May 9	Forensics Exam	Lab Check-out

### Course Requirements:

The final course grade will be based on attendance, class participation, quizzes, exams, lab experiments, projects, two short reports, and a final exam. The approximate percent weight of each is given below:

Attendance (includes participation in experiments).....	10%
Short Reports (see schedule of important dates) .....	30%
Exams, quizzes, lab experiments, and projects .....	60%

## Chem 121IN Course Policies and Information

### Preparing for Class

As an integrated class, we will discuss information, as scheduled on the syllabus, and **will do activities and/or experiments in every class**. It is your responsibility to read the assigned material in advance and to **download and read experiments** and/or activities to be performed in each class. If you have a laptop or tablet computer, you can access the experiments in class, but you will need to print out data pages for your lab reports.

### Quizzes/Assignments

There will be occasional quizzes or assignments, which will count as quizzes, during the semester. These will usually be take-home assignments. Each quiz will cover a specific topic or assignment. All quizzes/assignments have the same weight, even if the point count on particular quizzes differs. All quizzes are announced in class. Every effort is made to grade and return quizzes by the next class. Grades on quizzes are calculated as percentages.

- There will be a quiz on metric system and temperature (this will be a take-home quiz)
- There will be separate quizzes on:
  - Element names and symbols (in-class)

- Chemical formulas and nomenclature (take-home)
- Organic compounds (take home).
- Other quizzes will be announced in class
- There will be quizzes on the science fiction story readings (these will be take-home quizzes)

### Exams

There will be four exams or projects during the semester. The exams cover information discussed in class and supplementary readings or related material assigned. Problems or calculations, if required, must show proper set-ups and calculations. Questions will require written answers and some 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 may be calculated as percentages based on total possible point scores.

- Exam 1 will consist of questions that cover radioactivity, the atmosphere, water, air and water pollution, the earth, and energy sources and resources. (This is a take-home exam)
- Exam 2 will be a project on finding information on nanotechnology in the news. You will be asked to present a summary of your article in class. Please bring a printed copy of your article or a summary to class to hand in to your instructor. (Scheduled for March 26)
- Exam 3 is writing a science fiction story following the discussions of science and science fiction. (The due date for this will be announced in class.)
- Exam 4 is a forensics exam. This is a hands-on exam. You will work in teams of 2 individuals. You will be given clues and asked to solve a crime using techniques you learned in the forensics part of this course.

### Final Exam

There will not be a final exam at the end of the semester. The forensics exam is given in class during exam week.

### Laboratory Experiments and Laboratory Reports

This is an integrated class and there are laboratory experiments or activities scheduled for every class.

As there is no textbook or printed laboratory manual for this course, which provides a significant saving, you are expected to download and read each experiment or activity before coming to class. You should print out the laboratory experiments, or, if you prefer, you can work from your laptop computer or tablet. You will need printed data pages for the laboratory report.

If you are not prepared for lab, you may be asked to leave and will receive a grade of zero for that laboratory experiment.

Laboratory reports usually consist of completing data pages which are part of the experiments and answering any questions and/or completing any graphs or calculations needed. **A laboratory experiment is not considered to be complete without a laboratory report.** Only one report is required for each laboratory group.

Experiments or activities scheduled as homework count the same as a regular laboratory experiment. A report is required for these activities.

Reports are due no later than **one week** after the experiment is completed.

Laboratory reports are graded on a 10 or 25 point scale based on neatness, completion of data, and answers to questions. After the first 3 missed or incomplete experiments each missed or incomplete experiment is graded as a zero.

### LABORATORY SAFETY

This is a hands-on course that involves the use of laboratory chemicals. At the beginning of the semester, there will be a safety presentation in class, followed by a safety test in the following class. You must get a 100% on the safety test. If you do not score 100%, you will need to retake the safety test.

Most experiments contain a section on safety and disposal of chemicals. If there are any hazardous chemicals used in any experiment, you will be advised of any special precautions and handling of chemicals in the experiment write-up and/or by your instructor before the beginning of the experiment.

You are required to observe laboratory safety rules, in particular, wearing of safety glasses or goggles and wearing closed toe footwear (sandals and flip-flops are not permitted in the lab) If you are in violation of the safety rules, you will be asked to leave the laboratory and will receive a grade of zero for the day.

### Short Reports

Students are required to write **two** short reports for the course. Report details are given on pages 12-14.

The **first report** will be on a **current issue of your choice related to the chemistry** discussed in this course. The report may be a follow-up to class discussions, but must contain significant additional information.

The **second report** will be on the **chemistry of a consumer product**, available in stores, or, if a drug, over the counter. The report may focus on a single product or can be a comparison of similar products.

**Topics for the short report must be approved by your instructor.** This is to reduce multiple duplications of topics and allow your instructor to make suggestions for finding information. It also insures that the topic of the report fits the report requirements. If the topic was not approved and it does not fit the topic requirement, a grade of zero may be given.

If the report concerns a manufactured product, you should contact the manufacturer for information. (Note: Obtaining information from companies can be unreliable. Available information may be very general and delivery may take several weeks. Allow sufficient time to get information.) Additional information on the report is given later in this syllabus.

**Reports must contain a bibliography of sources used.**

The topic for your first report must be submitted for approval by **February 26, 2013.**

The topic for your second report must be submitted for approval by **March 28, 2013.**

(Should you encounter difficulty in obtaining information on the topic of your choice, the topic can be changed at a later date.)

The first report is due, in class, no later than **March 26, 2013.**

The second report is due, in class, no later than **April 25, 2013.**

**If you submit your report electronically, the time and date stamp on the message determines when the report was submitted.**

You are required to submit **two copies** of each report. (One for your instructor's records). If you submitted the report electronically, you are still required to submit a printed copy at the next scheduled class.

### **Submitting Work**

All quizzes, exams, and reports should be submitted in writing, in class, no later than the dates specified. **Late papers will be downgraded by 10 points in the first 24 hours** and an additional 10 points until the next class period. An additional 20 points will be deducted until the third class period. After that, a grade of zero will be recorded for that assignment or report. Since report due dates are announced at the beginning of the semester, there are no exceptions for late reports.

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 message or assignment was received within 48 hours of submitting it.

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.) It is your responsibility to make sure that the message was received.

### **Make-up Policy**

**THERE ARE NO MAKE-UP ACTIVITIES, or EXPERIMENTS** no matter how valid your excuse may be. All activities, and experiments are set up for specific classes and the materials are not available for later dates. **THIS INCLUDES PARTS OF AN EXPERIMENT MISSED AS A RESULT OF LATENESS TO CLASS.** (Any take home exams or activities will have 10 points deducted each day it is late.)

NOT SUBMITTING A SHORT REPORT WILL RESULT IN A GRADE OF "ZERO" FOR THAT ASSIGNMENT.

MISSING AN EXAM OR PROJECT WILL RESULT IN A GRADE OF "ZERO" FOR THAT EXAM OR PROJECT.

☞ If you know in advance that you will not be present for a class, please inform your instructor. (Please note that an excused absence is still considered an absence from class.)

☞ If you have a conflict with the forensic exam, it must be resolved before the last week of the course. The forensic exam takes time to set up all the materials needed and cannot be set-up for an additional day.

### **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 (including copying someone's assignments and handing them in as your own work) 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.

All work done for this class must be your own. While you may discuss assignments with other class members, the final written project must clearly be your own. You may use work from books, the internet, and other materials if it is properly cited. Copying from a published source without proper reference or from a person without acknowledgement, is considered to be plagiarism and will result in an F for the assignment, and, at the instructor's discretion, possibly an F for the course. An entire report downloaded from the Internet will result in an F for the course. There will be no exceptions.

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**

**Attendance is required for this course.**

As an integrated course, a major portion of your grade is based on activities and laboratory experiments which are part of each class. Relevant information and applications of course material, as well as demonstrations, are also presented in class, that material is not in the online text material or course notes. If you miss a class, your instructor can tell you what material was covered and summarize the experiment, activities, and any discussions that took place, however, instructors do not have a set of formal lecture notes you can copy, nor are the materials for an experiment still available. It is your responsibility to get detailed notes from one (or preferably two) classmate(s).

**Attendance is graded.** Missing a significant number of classes will seriously affect your final grade. Attendance counts as 10% of your course grade. If you are in class on time, and complete the experiment of the day, you get 10 points for your attendance grade. If you are late, or leave early, you get as much as 5 points for your attendance grade. An absence is graded as a zero. An excused absence is still counted as an absence from class.

Since there is an experiment in almost every class, **missed experiments are counted as a grade of zero.** 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. You will need to supply a doctor's note or other supporting information listing dates for extended absence.

### **Lateness**

Since this class involves a great deal of hands-on learning, lateness to class results in missed information and is disruptive to the other students. Please make every effort to get to class on time. **You will be penalized on your attendance grade for lateness.**

Since this course involves a great deal of hands-on experiments, if you do arrive late for a class, you may have missed important safety and lab technique information. At your instructor's discretion, you may not be admitted to class and can receive an absence (zero) for the day.

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.

### **Participation**

Part of your attendance grade is participation in class. There is assigned material to read for most classes. Those readings are listed under the topics section of the class schedule and are either on the course web page or linked to on the course web page. Some readings, such as science fiction stories, are on a CD supplied in class. You may be asked to answer general questions about the reading materials during the class discussions.

You are expected to take an active part in the activity or experiment in each class.

### **Extra Credit**

There is no extra credit. Don't ask!

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

### **Storms or Other Problems**

In the event of a severe storm, other major weather problem, or other problem such as a power outage, the area may experience transportation disruptions and traffic delays or the college labs may not be in operation. 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), 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, telephones, pagers and other electronic devices that distract students are not permitted in classrooms. Please turn off these devices during classes.

Students 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 45<sup>th</sup> day census date (see calendar) are assumed NOT to be participating in the class and may be withdrawn.

Please be sure to withdraw yourself by **April 4** if you do not expect to complete the class; otherwise you may receive a grade of "F" for the course and may affect your academic standing at the college. There is a late withdrawal process explained later in this document.

**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.

## **Chem 121IN 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.

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.

A grade of 60 is passing.

**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 in consultation with the instructor, however, there is no way to make up missed laboratory work. 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."

Due to liability reasons, an incomplete grade does not allow a student to sit through a course for another semester without paying tuition.

**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. **You must request the W grade, in writing, by the last day of classes** (not the final exam week).

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.

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 the address given with registration materials. At the end of the semester when all grades have been recorded, students should access their grades through Banner Services on the Pima Community College web site. For privacy and security reasons, instructors may not post grades and may **NOT** give grades over the telephone. Students may also check grades by calling MAX 2000 at 206-4880.

## 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
<b>Feb. 26</b>	<b>Topic for 1<sup>st</sup> Report due</b>
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
<b>Mar. 28</b>	<b>Topic for 2<sup>nd</sup> Report due</b>
Mar. 12-18	Spring Break – no classes
<b>Mar. 26</b>	<b>1<sup>st</sup> Report due</b>
Apr. 4	Withdrawal deadline
<b>Apr. 19</b>	<b>Exam 3 – Write a science fiction story. Story is due no later than today.</b>
<b>Apr. 25</b>	<b>2<sup>nd</sup> Report due</b>
May 7	Last day of regular classes. <b>Last date to request a W grade in writing</b>
May 8-14	Final exam week
<b>May 9</b>	<b>Forensics Exam</b>

## Short Report Information for CHM 121IN:

Two short reports are required as part of this course:

**The 1st report** will be on a **current issue or topic, related to the chemistry discussed in this course**, of your choice. The report may be a follow-up to class discussions, but must contain additional information beyond the class discussion and the text material or supplemental readings. Ideas for topics can be found in specialized magazines such as *Discovery*, *Scientific American*, *Invention & Technology*, *Smithsonian*, or *Popular Science* (to name a few), news magazines such as *Time* or *Newsweek*, newspapers such as *The New York Times* science section or *The Arizona Daily Star* (or other local paper), and the Internet. (Note: most magazines and newspapers have web sites that include news stories from recent issues.)

**The 2<sup>nd</sup> report** will be on the chemistry of a **consumer product** (including over the counter drugs, but not prescription drugs) of your choice. This may be on a single product, a comparison of several similar products, and/or the results of your own testing the product(s). If the report concerns a manufactured product, the report should tell what the product is, the active ingredients (if applicable), how it was developed, how it works, and as much of the science behind it that you can find. Information can be obtained from a number of sources including books, magazines (such as *Consumer Reports*, *Consumer Digest*, *Time*, etc...), U.S. patents (Internet address: [uspto.gov](http://uspto.gov)), and the Internet. You should contact the manufacturer of each product for information using their consumer telephone number, usually listed on the product label. (Note: Some consumer departments are quite good at supplying information, others will be of little or no help. Do not ask them too much information as they are afraid you may be a competitor trying to get proprietary information. It may take 2-3 weeks, or more, to get information through the mail, and, in some cases, the information never arrives.) If you are using the Internet, try looking for a web site from the manufacturer or under the product names on the Internet (try addresses such as *Tide.com*, *Tylenol.com*, etc.).

### Finding Information

When researching a topic on the Internet, use a search engine such as Google ([www.google.com](http://www.google.com)). Start out with one or two key words, then, after checking, add additional key words or terms. Use the word “and” or a “+” sign to join key words together. You can also use sentences or phrases in your search. Precede phrases or sentences by the term “intitle:” if you are looking for the phrase in the title of the article, or “intext:” if you are looking for the phrase in the text of the article.

**A word of caution.** Information on the Internet ranges from excellent to inaccurate. Wikipedia, may be a good starting point, but the information has not always been checked or is occasionally modified by individuals with the purpose of reinforcing their own agenda. Web sites often quote directly from other sites and omit important information. Some writers will inject their own viewpoints, writing styles, and emphasis, producing misconceptions. It is important to cross

check information on at least two independent web sites and, if the information is identically worded, check a third web site. There are always two sides to an issue, don't just choose information from one side, try to get opposing viewpoints.

**Topics for the short reports must be approved by your instructor.** This reduces duplication of topics and will allow your instructor to give you some guidance to help you to manage information. Failure to have your topic approved can result in your report being rejected for not fitting the objectives of the report.

#### **Requirements:**

The short report should be **five pages in length**, typed, and double spaced. (Do not quadruple space between paragraphs.) The report may be longer than 5 pages, if required, to complete your information. (One or two sentences on page 5 does not constitute 5 pages of text.)

**Margins** should be no greater than **one inch** (2.5 cm), top, bottom and sides.

**Type size** should be no greater than **11 point**, except for headings. Use a standard type font (such as Times, Calibri, or Arial), don't search for the font that takes up the most space. Points will be deducted for large type size or extra wide character spacing.

**Diagrams, chemical formulas, pictures, charts, and graphs** may be important information to explain or illustrate your topic. These items are considered additional material and **do not count toward the five pages of text required** for the paper length. The diagrams, formulas, pictures, charts or graphs may be placed in the body of the text or added on separate pages at the end of the text. Don't forget to reference this material.

If you include lists of ingredients for a product or for comparison of products, do not double space this information. Such lists are best placed in a table with comparisons in side-by-side columns. If you do list ingredients, tell what their function is in the product, but weed out irrelevant information (e.g., calcium carbonate, used in stomach antacid tablets, is also used in concrete for building and road construction, or silicon dioxide, used as an anti-caking agent in some foods, is used in making glass). A long list of active and inactive ingredients may not be counted as part of the five page requirement.

#### **The report must contain a bibliography:**

**Use three or more references**, some of which should be fairly recent (within the past two years).

Use multiple sources, do not restrict the information to different sections of a single web site or a single book or magazine.

Look for sources or review articles that may tell negative or unfavorable information about your topic, in addition to the positive information to obtain a balanced overview of your topic. **Do not believe everything you read**, you must apply some critical thinking to the information you find. There are a number of web sites that list negative information on almost any topic, take information out of context, and distort or exaggerate results of studies on processes or products. It is important that you check several independent, unrelated sources to evaluate these types of claims.

Put the information in your own words rather than copying directly from the reference or the internet.

Use footnotes or appropriate citations, where applicable, to acknowledge borrowed material, informing the reader of the source of statements or quotations, or for presenting explanatory or supplementary material not appropriate to the text. Not citing direct quotes or downloaded material is considered plagiarism and will result in a grade of zero for the report.

**All sources used** in the researching and writing of the report should be listed in the **bibliography**. Generally, the bibliography will be on page 6 of the report. The bibliography (and also footnotes, if you use them in your writing style) presents the following information:

#### **For a book:**

Author's name (last name first), the title of the book (underlined or in italics) including any series or volume number, the edition, if other than the first, the publisher, the place of publication (or home office of the publisher), the date of publication on the copyright page, and relevant page numbers. An example of a book reference is:

Saferstein, Richard, *Criminalistics, An Introduction to Forensic Science*, 7<sup>th</sup> Ed., Prentice Hall, Upper Saddle River, NJ, 2001, pages 228-257.

**For an article:**

The name of the writer, the title of the article in quotation marks, the title of the periodical (underlined or in italics), the volume number (underlined or in bold print), the date of the issue of the periodical, and the page numbers. An example of a magazine reference is:

Roger, J., P. Angel, and Neville J. Woolf, "Searching for Life on Other Planets", *Scientific American*, **274**, No. 4, April 1996, P. 60.

**For Internet material:**

The name of the author or publisher of the home page, the title of the article in quotation marks, the title of the magazine or journal or database (underlined or in italics), Internet address of the article, and the date the article or the home page was last updated. (The internet address, by itself, is not considered a valid reference.) An example of an Internet reference is:

Proctor & Gamble, "The Tide Fabric Care Network",  
[http://www.pg.com/frameset\\_fs.jhtml?frameURL=www.tide.com](http://www.pg.com/frameset_fs.jhtml?frameURL=www.tide.com), 2003

Please note that [www.google.com](http://www.google.com) is not an acceptable reference.

Internet references will be checked by your instructor. Failure to find and connect to an internet reference will invalidate that reference.

**For unpublished material:**

The name of the writer or individual (last name first), the title in quotation marks (if it is an article), and the date. If the information is relayed in an interview or by letter, tell the individuals professional position and use the term *personal communication* in place of the title. An example of unpublished information is:

Smith, John P., Technical Service Engineer, Nuclear Missile Company, *personal communication*.

**Diagrams, charts, tables, and pictures** may be included in addition to the text of the paper. They are best added as separate pages at the end of the report rather than trying to space them into the body of the text. When referring to a table, write *see Table 1* (Roman or Arabic number may be used) and when referring to a picture or diagram write *see Figure 1*. Give credit to the source if the table or figure is not original.

**Not citing direct quotes or downloaded material is considered plagiarism and will result in a grade of zero for the report. Please be advised that direct downloading of large sections of material from the Internet is considered to be plagiarism even with a citation listed at the end of the material.**

**If a proper bibliography is not included, the grade on the paper will be penalized by a minimum of 15 points.**

**English Composition:**

This is a chemistry course and the paper is on a scientific topic. You are, however, expected to write with proper organization, composition, spelling, and grammar befitting a college level report. It is suggested that you may want to have your paper reviewed by your English teacher before completing your final product.

**Binding:**

A single staple in the upper left hand corner of the report is sufficient for binding the pages together. Fancy report covers, spiral bindings, and other types of bindings are not necessary and do not improve your grade.

**Please submit two copies of your report.** (One for your instructor's files.) If you submit an electronic copy, the electronic copy must be in Microsoft Word format or RTF format. A second, printed copy of the report must be supplied. **Points will be deducted if a second copy is not supplied.**

**Report information and references may be checked** by your instructor through a variety of Internet sources and resources. Please note that the college subscribes to turn-it-in.com, a service that checks papers against thousands of sources for plagiarism, as such, be sure to properly cite references for all information and quotations.

**Grades** are based on content and accuracy of information, relevance to chemistry, proper references and citations, and composition. Reports are evaluated "as is" and are not returned for correction or updating of information.

**If the report is less than five pages long**, you will be penalized 15 points for each page under 5.

**If your margins or spacing are too large or your type size is too large**, you will lose 10 points per violation.

Reports that are considered to be plagiarized (i.e., copied word for word from a source without proper references), or found to be provided or purchased from a term report organization, will be assigned a grade of zero. Depending on the severity of the violation, your instructor may, as his discretion, assign a grade of F for the course.

**Late reports** will be penalized:

**10 points the first 24 hours.**

**An additional 10 points until the next class period.**

**An additional 20 points** will be deducted until the third class period.

**After that, a grade of zero** will be recorded for the report.

**The reports constitute 30% of your course grade.** Failure to submit one report means your grade for the course will be no higher than a C. Failure to submit both reports means you will get a failing grade for the course.

**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.**