

CHEMISTRY 120 A
INTRODUCTION TO CHEMISTRY
SPRING 2014 SYLLABUS

Instructors

Duane Weisshaar Office: GSC 254 e-mail: duane.weisshaar@augie.edu
 Phone (274)-4812 Home: 339-7269 class website: faculty.augie.edu/~dew
 Office Hours: 9-10 am MWF and 11-12 TR or by appointment
 Brandon Gustafson Office: GSC 245-1 e-mail: brandon.gustafson@augie.edu

Class Schedule

A Lecture 1:00 - 1:50 MWF GSC 241
 Lab A1 (DEW) 8:00 - 9:50 T GSC 243
 Lab A2 (DEW) 3:00 - 4:50 T GSC 243
 Lab A3 (Gustafson) 11:00 - 12:50 T GSC 243

Text & Supplies

General Chemistry: Atoms First McMurry and Fay, 2nd ed, Pearson (ISBN 10: 0321809262 / 13: 9780321809261 text only). You will NOT need an access card.

Preparing for Your ACS Examination in General Chemistry - The Official Guide - recommended. Purchase on-line at http://www.examsinstitute.com/Study-Guides_c_1.html (several copies also on reserve in the library)

Permanent Bound (not spiral) lab notebook with duplicate pages (carbon or carbonless) (available in the Bookstore)

Safety Goggles with complete splash guard (available in the Bookstore)

Scientific Calculator with log and 10^x (antilog) functions - **Programmable (graphing and/or alphanumeric) calculators and cell phone calculators are NOT allowed on exams.**

Grading Criteria

POSSIBLE POINTS		GRADING CUTOFFS	
Exams (4)	400	A - A-	1000 - 930 - 900
Chemistry in Action Reports (5*25pts)	125	B+ - B - B-	870 - 830 - 800
Labs (11 * 25pts)	275	C+ - C - C-	770 - 680 - 650
ACS Final Exam	200	D+ - D - D-	630 - 580 - 550
TOTAL	1000	YOU CANNOT PASS THE COURSE UNLESS YOU PASS THE LAB (151 PTS OUT OF 275)	
Late assignments penalized 20%		Borderlines will be assessed on a case by case basis.	
No assignments accepted after 5 pm on the last day of classes			
Last day to drop or change to S/U is Friday, Nov. 1			

GENERAL GOALS AND EXPECTATIONS

Nature of the Course

Chemistry 120 serves both as a Core Course in Area 3.2 and as a prerequisite to other courses. The main objectives of this course are:

- General Goal of Area 3 - The liberally educated person, in addition to possessing skills and self-understanding, should have pursued broad intellectual experience in many fields of inquiry. To that end, the six parts of this area will acquaint the student with knowledge in many diverse fields.
- Specific Goal of Area 3.2 courses - This section [of Area 3] is designed to provide students with knowledge of science as a way to understand the world of nature, and of technology as the application of scientific principles to useful ends.
- Development of an understanding of some basic chemical concepts (e.g. bonding, equilibrium including buffers, stoichiometry, chemical kinetics, and oxidation-reduction) and their impact on human lives.
- Development of an analytical thinking/problem solving **process**. This will require abstract thinking skills as we seek to relate observable phenomena to the characteristics and behavior of atoms and molecules.
- Development of team skills through cooperatively working together in small groups.
- Development of an ability to follow oral and written directions (lab and lecture).
- Development of basic laboratory skills.

The last goal reflects that chemistry is an **experimental** science, i.e. that lab work is an integral part of the discipline. To address the various aspects of that goal, the laboratory experience in this course is designed with the following purposes in mind:

- Provide a hands-on illustration of concepts covered in lecture.

- Provide experience with the equipment and techniques used in chemistry with attention to safety issues.
- Illustrate the importance of following directions (written and oral), of organization, and of making observations in the lab.
- Develop the fundamentals of keeping a notebook and reporting results.

Teaching/Learning Philosophy:

TEACHING CANNOT OCCUR UNLESS YOU, THE STUDENT, ARE ACTIVELY INVOLVED IN THE LEARNING PROCESS!! Thus learning is **not a spectator sport**, it requires an active effort on your part; reading, working problems, writing reports, etc. Learning is largely a "trial and error" process; we seldom get it right the first time, so learning also requires **PRACTICE, PATIENCE, and PERSISTENCE** (similar to participation in sports or music). The teacher **cannot make you learn**; the teacher is only a guide and a resource (a coach, if you will) to help you master the material and to sort the important from the trivial. You should not want or expect the professor to do it for you. *You should take charge of your education.*

What instructors expect of students:

- Read the chapters before they are discussed in class.
- Work problems every day.
- Come to class with questions and ask them.
- Read the lab and get organized before you come.
- Think about what you are doing in lab - don't just blindly follow the recipe.
- spend 6-8 hours per week **outside** of class efficiently studying (4 hour class * 2, rule of thumb).

What students can expect of Instructors:

- Will *not* lecture on everything.
- Will answer questions.
- Focus in class will be on the more difficult concepts, student questions, problem solving strategies.
- Brief presentation in lab highlighting safety issues and special directions or modifications.
- Will be available outside of class.

Tips

- This is a fast paced course - **START TODAY.**
- Form a study group.
- Make connections between what you see every day and what you are doing in class.
- Do all the assigned problems - "practice makes perfect" - a few every day.
- Make use of the Chemistry tutors available in GSC 262 (Seminar Room) every Monday through Thursday from 7-9 pm.
- Ask questions and persevere. The instructor wants you to succeed and will help if you just ask.

Attendance

It is expected that you will be in the lecture or the laboratory! If you miss a lecture, YOU are responsible for finding out about any announcements, handing in assignments, obtaining class notes from a classmate, etc. Absence from laboratory or examinations will be excused only because of *illness or family emergency*! An unexcused absence will result in a '0' for the work missed. For lab conflicts consult early, you can often join another lab section if there is enough advance notice. Be especially cognizant during registration week - if registration and lab times overlap and you don't plan ahead, plan to be in lab and register at a later time.

Accommodating Disabilities and Special Situations

Any students with disabilities who need reasonable accommodation in this course are encouraged to speak with the instructor and lab instructor as soon as possible. Students with questions regarding disability services may contact Susan Bies at the Student Support Services Office, Career Center Suite, Room 100, in the Edith Mortinson Center, 274-5503, susan.bies@augie.edu.

Chemistry, by its very nature, involves handling of potentially hazardous substances. The labs in this course will teach you how to properly handle these substances while minimizing the range of exposure. However, exposure effects vary from person to person. So, if you have asthma, allergies, are pregnant, or have other special circumstances, please inform your lab instructor so we can plan appropriate accommodations for your safety.

Honor Code

As a community of scholars, the students and faculty at Augustana College commit to the highest standards of excellence by mutually embracing an Honor Code. As a College of the Evangelical Lutheran Church in America, we understand the individual and collective responsibility we have in fostering integrity. Ultimately, our purpose is to be an engaged body of academically excellent, highly articulate, and morally centered persons who learn about and examine the world together. We believe that only when we are honest with each other and ourselves can we begin to contribute to the world in a meaningful manner. To that end we pledge that we will abide by the highest standards of **academic integrity**, and that we will abide by the decisions of the joint student/faculty Honor Board. (The full description of the Honor Code is available at www.augie.edu/admin/acadaff/.)

What does **Academic Integrity** mean in this course?

- ▶ You do your own work on individual assignments (not copying others). On group assignments you contribute to the group effort and strive to understand all parts of the project, not just the part you do.
- ▶ In lab you are “true” to your data - your report reflects what *you* measured and observed; data is not changed or manufactured to fit expectations. If you missed collecting some data, see the instructor; don’t copy someone else’s data.
- ▶ Give credit where credit is due. When you gather data from the Web, books, magazines, etc. cite the reference (author, title, etc.).

I presume we are in this class to help each other learn some chemistry (yes, instructors learn in this class too), so I trust you to turn in work that reflects your efforts and also, that as individuals and in your small groups, to help each other adhere to the **Honor Code**. In addition, the following statement will be appended to each exam and *you should add it to each assignment* (Word file on Moodle):

On my honor, I pledge that I have upheld the Honor Code, and that the work I have done on this assignment has been honest, and that the work of others in this class has, to the best of my knowledge, been honest as well.

Signed _____

If you cannot, in good conscience, sign this pledge or an assignment or if you have other concerns about academic integrity in this course, please come visit with me (in confidence of course) or send me an e-mail note. At a minimum, students caught violating this code will receive a zero (0) on the assignment or exam and the incident will be reported to the Academic Dean in accordance with the Honor Code procedures.

Communication with the Class

The instructor will use your Augie e-mail addresses (@ole) for class announcements and general communication with the class and with individuals; check your e-mail daily. Email is sometimes erratic, so I will respond to every message you send. If you don’t get a response in a day or two, send your message again. Refer to your NSS manual or see the Help Desk (Madsen Basement) for details on accessing your e-mail. If you use another e-mail account, put a forwarder in your @ole account (contact the Help Desk for help in setting up a forwarder).

Moodle

Syllabus, other handouts, any powerpoint presentations used in class, answer keys to exams, and other information files for this class will be posted on Moodle under **Chem 120A**. The grade book will be updated after each exam so you can check that grades are recorded correctly and see how you stand. You must be enrolled (see below) to appear in the grade book.

IMPORTANT NOTE: Internet Explorer and Mac browsers sometimes have problems accessing Moodle. You are encouraged to use Mozilla’s Firefox.

Logging in:

Go to <https://moodle.augie.edu> (from the Augie homepage, click “Students” and then “Moodle”)

- ▶ Log in using your Novell username (for example, mjsmith07) and password.
- ▶ Add yourself to the appropriate course:
 - ▶ Click on your course category.
 - ▶ Find the course “CHEM 120 A Introduction to Chemistry (Weisshaar)” and click it.
 - ▶ enrollment key = chem120a (all lower case, no spaces)
- ▶ After enrolling, the course will appear in your list of courses when you log in. Simply click on the course name to see the content.
- ▶ Use your **ole.augie.edu email address** to coordinate with the instructor’s records.

Troubleshooting:

If you have any technical problems with Moodle, contact **Sharon Gray**, Augie’s Instructional Technologist. Her e-mail is gray@augie.edu. Her phone numbers are: 605-624-4907 (office), 605-624-8833 (home), and 605-670-0185 (cell).

Resources Beyond the Textbook

Feel free to consult with the **instructor** concerning any problems or questions you encounter in the course or about Augustana. Office hours each week are listed above, but I will be glad to help you at other times as well. Making an appointment will (usually) guarantee that I will be available, but it is not necessary, drop in any time. You may also communicate questions or concerns via e-mail to the instructor.

Chemistry Tutors are available at no cost in the Chemistry Seminar Room (GSC 262) Sunday through Thursday evenings from 7-9 pm to provide tutorial help. Feel free to consult with them. Augustana also provides other tutoring services for a variety of classes including chemistry; check them out at <http://www.augie.edu/campuslife/housing/-freshmen-residential-experience/tutoring>.

Class Website (faculty.augie.edu/~dew) also accessible from the Chemistry Department Home Page, provides the syllabus, most of the handouts, old exams, and links to a number of chemistry related sites.

A **Study Guide** accessible on Moodle and the class website outlines each chapter to be covered, highlighting the important material and concepts to help you focus your study time.

Computer Assisted Instruction

Three Excel spreadsheets, *Name Worksheet.xls*, *Balance Worksheet.xls*, and *Complete and Balance.xls*, are available on Moodle to give you practice in nomenclature and balancing reactions. Worksheets within each file are generated from a small database, so each printed worksheet is different. These files use macros, so you need to make sure Excel will allow macro use (the default is to BLOCK macros).

Make sure Analysis Toolpak is Active:

- Load Excel
- Open Main Menu (icon in upper left corner)
- Excel Options button (bottom right)
- Add-Ins (left panel)
- Analysis Toolpak inactive list? yes- you're good to go. no - select it in the Inactive list and click on the GO button at the bottom of the page.
- Continue with next section or click OK until you have exited all the menus

Make sure Security is set to enable macros:

- Navigate to Excel Options
- Trust Center Settings button (lower right in right pane)
- Macro Settings (left pane)
- Select "Disable all macros with notification"
- Click OK until you have exited all the menus

Run the programs:

- On Moodle click the worksheet file you want to run, then choose "open with Excel. When it opens in Excel, click **enable macros**. Then click the **Print Worksheet** button. The screen will flash as the spreadsheet builds the worksheet and then it will print to the default printer. Each time you click the **Print ... Worksheet** button, it will print a **different** worksheet. Close Excel; don't save changes.
 - NAME - practice in naming and writing formulas.
 - BALANCE - practice in writing formulas and balancing reactions.
 - COMPLETE AND BALANCE - practice in writing formulas, predicting products of reactions, and balancing.

ACCOMPLISHING THE GENERAL GOALS AND EXPECTATIONS: GUIDELINES AND EVALUATION

General Guideline for All Work Submitted

- Give **evidence** of your thinking process on all work:
 - **show calculations in logical steps** that someone else can easily follow.
 - **explain your reasoning** on all questions.

NO WORK, NO CREDIT!!!

- Strive for explanations and thinking that relates the observable to the characteristics and behavior of atoms and molecules, i.e. relate the macroscale to the nanoscale.
- When expressing decimal numbers that are less than one, include a zero before the decimal point (0.315 cm, not .315 cm or 0.315 with no label)
- Don't round off until the last step.
- Express answers to the correct number of significant digits and include units (labels).
- Show charges on all ions.

Homework

Working problems, not just watching someone else do it, is essential for learning chemistry, so problem solving should be a regular and significant part of your study time for this course. To help you focus on appropriate problems, a set of recommended problems relating to the key concepts in each chapter are included in the Study Guide. These problem assignments are for your benefit and will **NOT be collected or graded**. Worked out solutions for the problem sets are posted on Moodle. There are 100 or so recommended problems; over the course of the semester; this amounts to working about ONE or TWO problems per day. Pace yourself and take good advantage of these opportunities to **think chemistry**.

Chemistry in Action Reports

An important aid to learning is to see concepts expressed in several ways and in a variety of contexts, particularly as applications in familiar settings. In the **Chemistry in Action Report** you will seek out these connections. There will be **5 reports** throughout the semester worth 25 points each; each one due at 5 pm on the class day preceding each hour exam and on the last day of classes. **Small groups** (up to 3 students) who work on the report together may turn in a single copy, with all group members **signing** the Honor Pledge. Late Reports will be penalized 20%. No Reports will be accepted after 5 pm on the last day of classes.

EACH Chemistry in Action Report includes *Honesty Pledge, copies of three articles, your response to each, and a complete reference for each*. Format for *each* report:

- Make the Honesty Pledge the first page (no other cover page), print name(s) and date as well as signature(s).
- **TWO** articles or advertisements from a newspaper, magazine, periodical, etc. that relate to the chemistry we are covering this semester.
 - It is not restricted to the current unit.
 - Choose publications aimed at the general public, **not** chemistry specific journals.
 - If you use the Web make sure you locate the full article, not just an abstract.
 - Chemistry Department Seminars (most Fridays at 3 pm, watch the sign board outside the classroom) may be used as articles as well. Seminars on one day collectively count as one article.
- For each of the two chemistry items, write a 1-2 paragraph **response** that demonstrates that you have thought about the content. **THE RESPONSE MUST CLEARLY BE MORE THAN A SUMMARY**.
 - Response may include your reasons for choosing that article, your feelings about the information presented or the way in which it was presented, your view on the issue, questions that arise concerning the article, etc.
 - Describe the connection to the course material if it is not obvious.
 - Keep in mind that anyone can put anything they want on the Web, there are no controls to guarantee scientific accuracy or even a scientific basis.
 - Also keep in mind that “cutting edge” science is science that is not well understood yet. It is common for experts to disagree on these issues; in fact, discussions over disagreements often raise the questions targeted by future research which ultimately leads to a clearer understanding.
- **ONE** article from a reference other than your textbook about one of the chemists (a person) we have encountered this semester. Summarize this article. This item is not restricted to the current unit.
- Just below each response/summary, provide a **full** reference to the article (give credit where credit is due). Include enough information for someone to locate that article down to the exact page. References should conform to the formats given below. NOTE: a URL alone is **not** a complete reference.
 - If the article appeared in print but you located it by a Web search, give the full print citation **AND** the full URL you used to locate it.
 - For *periodical articles in print*, the format should be: Author(s). Title of article. Journal abbreviation. year, volume, inclusive pages. Example: Wysocki, J. LCGC 2001, 19, 1150-1159.
 - *Online periodical articles* have a similar format with a couple additions: Author(s). Title of article. Journal abbreviation [Online] year, volume, pages, and the complete URL. Example: Wysocki, J. LCGC [Online] 2001, 19, 1150-1159, www.lcgcmag.com/lcgc/data/articlestandard/lcgc/482001/2674/article.pdf.
 - For *books*: Author1; Author2 Chapter Title. Book Title, Edition Number; Publisher: Place of Publication, Year; pages. Example: Willard, H. H.; Merritt, L. L., Jr.; Dean, J. A.; Settle, F. A., Jr. Chapter 2. Instrumental Methods of Analysis, 6th ed.; Van Nostrand: New York, 1981; 158-231.
 - For *Web pages*, the citation format should be: Author, if available. Title of page as listed on the site. Address of page (date accessed). Example: Hsu, D. Chemicool Periodical Table. www-tech.mit.edu/Chemicool/ (accessed Jan. 5, 1999). (*A URL alone is not a sufficient reference*).
 - *Chemistry Seminar*: Title of presentation, presenters, date, Augustana College (location). Chemistry Seminars can count as articles but *not* as a chemist/person.

- NOTE: Browsers usually include the URL at the top or bottom of the page when you print the page. However, if it is a long URL, it will often be abbreviated by using ... somewhere in the string to show that something has been left out. In those cases, get the *full* URL from the Location box in the browser window.
- Attach a copy of each of the three articles or send the instructor electronic copies. Be sure the file name for the electronic copy includes partners initials and an assignment identifier, e.g., AJ HR Act2 article3.
 - A link to a file is **not** a copy (I don't have time to follow links for the whole class.)
 - Capture the pages as a file - either as a pdf (print to a pdf converter - there are many free converters available) or as a text file (File/Save As - won't look pretty but the info will be there).

Hour Exams

4 hour exams (100 pts each) will be given as scheduled (see lecture schedule below) during the regular lecture period. If you have to miss an exam, please notify the instructor, preferably before the absence. If you have an acceptable excuse for missing an exam and the exam cannot be rescheduled conveniently before the exam is returned to the class, more weight will be placed on your final exam to cover the missed exam. **No phones or programmable (graphing or alphanumeric) calculators are allowed during exams.**

Hour exams offer a periodic opportunity for you to demonstrate your understanding of the material. Consistent with the nature of chemistry, each exam will be somewhat comprehensive, with material taken from what has been covered to date, as well as lab and safety material. A **Study Guide** for each chapter is provided on Moodle and the class website. Before each hour exam, we will review the outline of the chapters to be covered on the exam so you can plan and focus your study time. In addition, examples of past exams are available on the class web site. The tables of *Relevant Formulas and Constants* in the *Study Guide* highlight what you should know for exams. The table at the end of the **Study Guide** lists equations and constants that will be supplied on all exams including the ACS final exams.

Final Exam

The **final exam** (200 pts) is one last opportunity for you to demonstrate that you have mastered the material presented in this class. An ACS General Chemistry exam (standardized exam) will be given during the final exam period. In addition you will have the opportunity to take a different edition of the ACS Exam during the last lab period. Your **best** ACS Exam score will become your score of record for the Final Exam. An ACS publication *Preparing for Your ACS Examination in General Chemistry - The Official Guide* will be helpful in preparing for this type of exam and for hour exams. Purchase a personal copy on-line at http://chemexams.chem.iastate.edu/guides/details_guides.cfm?ID=162 or use one of the copies on reserve in Mikkelsen Library. *The Study Guide is copyrighted material, so making a xerox copy of those on reserve is not an appropriate strategy.*

A practice exam and its answer key assembled from retired ACS exams is available on Moodle. This is not fully equivalent to the exams you will take, but it serves as a study aid in preparing for the ACS exams.

Since the final represents a recap of the entire semester, it may also be used to **improve the score on your lowest hour exam**. It works like this: if you score a higher percentage on the final than on a previous exam, or if you missed an exam, then the final exam score will replace that exam score.

Each ACS exam has a multiple choice format, 70-75 questions, and about 2 hour time limit. ACS Exams provide a list of constants similar to the list provided on other exams. Points for the ACS Exams are scaled to the national norms.

Why use a standardized exam?

Grades are used for a variety of purposes, most of which extend well beyond Augustana. To facilitate these ends, students' grades should give some reflection of their abilities and mastery of the subject compared to similar students across the nation. In this course the final exam in the form of a standardized exam prepared by the American Chemical Society (ACS) is used to provide that context. The rationale for using a standardized exam includes several aspects:

- Assessment tool for the Chemistry Department as it evaluates its curriculum.
- Comparison tool for you and the Chemistry Department to see how you and the class as a whole "stack up" against your counterparts across the nation.
- National norms provide a yardstick for determining a consistent grading scale.
- True mastery of a concept implies an ability to apply it in new situations. Exams prepared by someone other than the instructors provide new contexts and formats to test this ability. Or as John W. Moore wrote in an editorial in *The Journal of Chemical Education* **1998**, 75(2), 135: "*In a world in which change is the norm, only an educated student has been properly equipped to prosper. This means that students need to be able to identify and define problems, to solve them imaginatively, and to apply the chemistry they learn in a variety of contexts in other disciplines.*"

- Students gain experience/practice in taking standardized, multiple-choice exams often used as a “hurdle” for many post-college endeavors (e.g. MCAT for medical school, OAT for optometry school, DAT for dental school, GRE for graduate schools, Nursing Boards, Bar Exam, CPA certification, etc.)

Nature of Standardized Exams: General Chemistry encompasses a wide range of topics, so wide that it is impossible to cover all of them in any detail in one course. Each instructor of a General Chemistry course will select a subset of the topics that match the background and career interests of the students and the instructor’s personal biases of what is most important. Comparing students in such courses on a nationwide basis with a single exam becomes a daunting task. The ACS (and many other testing agencies) approaches the task by designing an exam that covers the entire range of topics in the discipline. That means that virtually all students will encounter questions over material they *have not* seen in class, but also they will surely encounter some questions over the material they *have* seen. The goal of the exam designers is to have an exam where the average student will get about half of the questions correct. However, the actual value of this raw score is not important. What is important is how it compares with the scores of other students taking the exam. The percentile, derived from the distribution and ranking of raw scores, provides this comparison information - it tells you specifically what percentage of students from the sampling pool scored lower than you on the exam.

Strategies for Preparation: A common myth propagated among students is that studying for standardized exams is a fruitless endeavor. **THIS IS ABSOLUTELY NOT TRUE.** If you have a firm understanding of the material covered in class, you can score quite well on these exams. So, **PREPARE** by focusing on the material we have covered in class. Also make use of the guidebook *Preparing for Your ACS Examination in General Chemistry - The Official Guide* (ACS publication). Multiple opportunities to take these exams allow you to identify and then study for problem types that are giving you difficulty.

Laboratory

Lab provides the opportunity for you to gain hands-on experience with the concepts encountered in class, and to learn proper and **SAFE** lab techniques. **LAB WORK** is permitted only during the scheduled lab periods. The schedule of experiments is found on the last page of this syllabus. If you must miss a lab, see the instructor promptly (preferably before the absence). In general, only students with **EXCUSED** absences (mainly illness or family emergency) will be allowed to make up missed labs.

You will work in groups of two on each lab. Share duties in the lab so both are involved in the experiment - learn by doing, not by watching.

Details for recording data in lab and writing the lab report are given on pages 6-7 of the lab manual. Each student submits a Safety and Reactions Report due at the beginning of the period the experiment is conducted (not required for the first lab) and a Lab Report at the beginning of following lab period. Partners may work together on the calculations, but each student writes a conclusion. Labs are worth 25 points each; late lab reports will be penalized 20%. No lab reports will be accepted after 5 pm on the last day of classes. **YOU CANNOT PASS THE COURSE UNLESS YOU PASS THE LAB, AND YOU ONLY GET POINTS FOR LAB REPORTS TURNED IN.**

Lab Safety

Safety is a primary concern in the laboratory; we must work together to ensure a safe working environment in the lab. Start by reading pages 1-5 in the lab manual and pay particular attention to the sections on LABORATORY SAFETY AND PRECAUTIONS and STANDARD LAB PRACTICES AND TECHNIQUES. Abide by these guidelines and safety rules while you are in the laboratory. During the check-in laboratory, we will spend time on general lab safety and the safety equipment in the lab will be pointed out.

Attendance at the first lab is essential. During that period we cover safety in detail, establishing how we will operate throughout the semester.

Safety must also be intentional so we will ask each of you to signify your willingness to join your instructor, assistants, and fellow students in following these rules and developing safe habits in the lab by signing this statement and abiding by that commitment.

I have read and understand the LABORATORY SAFETY AND PRECAUTIONS and the EMERGENCY PROCEDURES sections of the Chem 120 lab manual. They have also been discussed in lab and/or lecture. I agree to abide by them and to work cooperatively with my instructor, assistants, and fellow students to ensure this lab is a safe place to work and learn.

Name _____

Date _____

Handouts and links available on Moodle and the class website:

- This syllabus
- Study Guide for McMurry and Fay, 2nd ed.
- Ions, Charges, and Naming (also in lab manual)
- Using Excel 2007 in Chem 120 (also in lab manual)
- Solubility Rules
- Outline of the Periodic Table
- Link to ACS Study Guide website
- Link to Augie's Tutor homepage
- ACS Practice Exam and its answer key (Moodle only)
- Link to the class website on Moodle
- Answers to the Recommended Problems in the Study Guide (Moodle only)
- Three Excel worksheets (Moodle Only)
- Honor Pledge for attaching to assignments (Moodle only)
- Past exams from this course (website only)
- Link to Moodle on the class website
- Spring Lab Handouts (Moodle only)
 - Expt 5 Vinegar Titration 14s (replaces experiment in lab manual)
 - Expt 8 Calorimetry - Pasco Directions 14s
 - Expt 9 Gas Laws 14s (replaces experiment in lab manual)
 - Expt 12 Kinetics - Additional Notes 14s
 - Pasco Manual 14s

Chem 120 - Tentative Lecture Schedule		
Date	Chapter	Topic
Feb 5, 7	3	Introduction, Atoms and Ionic Bonds (Nomenclature)
10	0	Chemical Tools: Experimentation and Analysis
12, 14, 17	1	Structure and Stability of Atoms
19	2	Periodicity and Electronic Structure
Feb 21 (F)		Exam 1
24	2 (cont)	Periodicity and Electronic Structure
26	3 (cont)	Atoms and Ionic Bonds (after nomenclature)
28, Mar 3, 5	4	Atoms and Covalent Bonds
7	5	Covalent Bonds and Molecular Structure
10-14	-	No class – Spring Break
17, 19	5(cont)	Covalent Bonds and Molecular Structure
Mar 21 (F)		Exam 2
24, 26	6	Chemical Arithmetic: Stoichiometry
28, 31, Apr 2	7	Reactions in Aqueous Solution
4, 7	8	Thermochemistry: Chemical Energy
9	9	Gases: Their Properties and Behavior
Apr 11 (F)		Exam 3
14	10	Liquids, Solids, Phase Changes
16	11	Solutions and Their Properties (solubility)
18-21	-	No class – Easter Break
23	13	Chemical Equilibrium: The Extent of Chemical Reactions
25, 28, 30	14	Aqueous Equilibria: Acids and Bases
May 2, 5	15	Applications of Aqueous Equilibria
May 7 (W)		Exam 4
9, 12, 14	12	Rates and Mechanisms of Chemical Reactions
16		wrap up and review
May 13 (T)		Last lab period – First ACS exam
May 19 (M)		Second ACS Exam (9 am)
<p align="center">Chemistry in Action reports due the class day before each exam and last day of classes. No assignments accepted after 5 pm on the last day of classes. Last day to drop or change to S/U is Friday, April 11.</p>		

LAB SCHEDULE			
Date	Lab	Title	Chap
T			
Feb 11	1*	Check In, Safety & Intro to PASCO GLX	-
18	2	Scientific Measurements	0
25	3	Determination of Isotopic Abundance and Avg Atomic Mass	1
Mar 4	4*	Library Exercise	-
11	no lab	Spring Break	
18	6*	Molecular Models	4, 5
25	5	Determination of Organic Acid Content of Vinegar - PASCO	6, 7
Apr 1	7 long method	Inorganic Synthesis	5, 6
8	8 abcd	Calorimetry - PASCO	8
15	9	Gas Laws - PASCO	9
22	10	LeChatelier's Principle	13
29	11 abce	Acids, Bases, & Buffers	7, 14, 15
May 6	12	Kinetics - PASCO - and Checkout	12
13	-	First ACS Exam	
<p align="center">*no Safety and Reactions report for these labs Safety and Reactions reports are due at the beginning of the lab period (5 pts). Lab Reports are due at the beginning of the following lab period (20 pts).</p>			