ANOKA-RAMSEY COMMUNITY COLLEGE COURSE SYLLABUS

Course:	Chemistry **1061: Principles of Chemistry** I, 4 credits, Fall 2009
Prerequisite:	MATH 0210 with a grade of C or better, appropriate score on math placement test, or equivalent. Grade of C or better in CHEM 1020, high school chemistry or equivalent. MATH 1200 recommended
Lecture:	**M/W** 1:30 pm – 2:45 pm G202
Laboratory:	**M** 3:00 pm – 5:40 pm E226
Instructor:	Professor Andrew W. Aspaas (you may call me Andy), Office E224
E-mail:	andrew.aspaas@anokaramsey.edu
Phone/Voicemail:	763-433-1108
Course Webpages:	http://webs.anokaramsey.edu/aspaas/1061 (Notes, audio/video, answer keys, links, announcements) http://www.masteringchemistry.com (Online homework) http://www.anokaramsey.edu/onlineProg (**D2L**: discussion boards, grades)
Office Hours: (all are in E224)	**M** 11:00 am – 1:20 pm **W** 11:00 am – 12:00 noon (additional office hours available by appointment)
Lab Manager:	Daniel Harmon, Office E225, 763-433-1813, daniel.harmon@anokaramsey.edu

COURSE OUTCOMES

Upon successful completion of the course, the student should be able to:

1. Demonstrate the ability to solve problems and demonstrate conceptual knowledge in the following areas:
   A. Measurement and dimensional analysis
   B. Atomic theory
   C. Inorganic nomenclature
   D. Identification of reactions types; prediction of double replacement products
   E. Determining percent composition and empirical and molecular formulas.
   F. Stoichiometry
   G. Solutions
   H. Gas laws
   I. Thermochemistry
   J. Quantum theory
   K. Bonding theory
   L. Molecular geometry

2. Demonstrate the following abilities as they relate to labs in the major areas of course content:
   A. Collecting data using a variety of equipment – especially computer interfaced probeware
   B. Recording, organizing, and analyzing data in tables and graphs
   C. Interpreting the results of experiments relative to the objectives and the uncertainties of the data
   D. Individually and/or collaboratively prepare laboratory reports with proper scientific writing style
   E. Formulating and testing hypotheses through the development of an inquiry-based experiment
   F. Laboratory and chemical safety and waste disposal
   G. Effectively communicating experimental results and concepts orally
   H. Working effectively and cooperatively in groups

REQUIRED MATERIALS

Textbook: Chemistry: A Molecular Approach, 1st edition, Nivaldo J. Tro
(text also available as ebook from http://www.masteringchemistry.com)
MasteringChemistry access (bundled with text or available from http://www.masteringchemistry.com)
Lab Activities: Available at http://webs.anokaramsey.edu/chemistry
Labs must be **downloaded, printed, and read *before* coming to lab** each week
Bound Lab Notebook
Non-programmable scientific calculator with LOG key
Outside-class access to an internet-connected computer at home ***or*** using the ARCC computer labs

ADDITIONAL OPTIONAL RESOURCES

Study Guide and Solutions Manual
Website Links: Available at http://webs.anokaramsey.edu/chemistry and http://webs.anokaramsey.edu/aspaas/
On-Campus Tutoring: Schedule will be posted at http://www.anokaramsey.edu/StudentServices/cr_chemistry.cfm
and at the Academic Support Center

BE RESPECTFUL, BE RESPONSIBLE, RISE TO THE CHALLENGE

By enrolling in this course, you have become a welcome member of a *community of learners*, an honor and a privilege for each one of us. Your membership in this community and your success in this course are dependent upon your ability to do the following:

Be Respectful. Respect your instructor as an expert in his or her subject area and as the person responsible for facilitating a productive course for everyone. Respect each of your classmate's right to a valuable class experience, free of offensive language, intolerance, or harassment of any kind. Respect these facilities and our time together by eliminating all distractions, especially cell phones, iPods, and other gadgets, and by refraining from disruptions of any kind, including sleeping in class or talking when no formal class discussion is taking place. Finally, respect yourself by participating fully in each class session and making the most of this learning opportunity.

Be Responsible. As a student in this college course, you are entirely responsible for your own success. You are responsible for reading and following the syllabus. It's expected that you arrive to each class session on-time, with assigned work completed, ready to participate fully. If you miss class, you are responsible for the consequences. You are also responsible for obtaining notes, assignments, and syllabus adjustments. Finally, you are responsible for being an active participant in this class rather than a passive observer.

Rise to the Challenge. College-level courses are demanding. They require deeper thinking, more effective writing, and greater personal involvement than many students realize. In order to succeed at this level, you must be willing to accept the challenges presented by the course material, your instructors, and a rigorous schedule. One of the rewards of this challenge can be the discovery that you are capable of much more than you imagined. Therefore, expect great things from yourself, work hard to achieve them, and seek help when you need it. The other members of this community of learners are here to support you, but it's up to you to *rise to the challenge*.

While I do not take attendance, class attendance is expected by college policy. ***Students are responsible for all information and assignments given in class.*** The easiest way to fall behind and ultimately fail a class is to be absent multiple times. Material moves relatively quickly in this course, so even one absence can put you behind. This is even more important for block schedules, where missing one class is missing a whole week of the course!

LABORATORY

Laboratory attendance is mandatory and experiments must be performed at the assigned time. If you must be absent, including for an illness, notify the instructor in advance. Make-up labs may be arranged during other scheduled lab periods by consulting with the instructor. If you miss a lab, or are unable to make it up during one of the other lab periods, it will count as a ZERO. However, the lowest laboratory score for the semester will be

dropped. Students missing three labs will have their grade reduced by one full letter grade. Students missing four labs will have their grade reduced by two full letter grades. Students missing five or more labs will fail the course.

Laboratory reports will be due at the beginning of your assigned lab period the following week. A portion of the total points will be deducted for each day a report is turned in late. Laboratory reports that are more than one week late will receive a ZERO. Prelaboratory assignments (if any) must be completed by the beginning of the laboratory period in which the experiment will be performed. They may not be turned in late. Lab quizzes may be administered. Students will either work individually or in pairs. There will be no groups of three or more, unless assigned by the professor. A laboratory course should involve as much "hands-on" work as possible for each student.

A major laboratory project based upon literature and laboratory research will occur during the last several weeks of lab. More information on the project will be given in lab.

ASSIGNMENTS AND QUIZZES

Reading assignments are given later in this syllabus. You must have each of the reading assignments completed *before* the class period where that material is covered.

A small number of **quizzes** (usually 3) will be administered as either in-class, take-home, or online quizzes in this course. Quiz dates will be announced in class and on the course webpage at least one week in advance. The quizzes will not be open-book. Quizzes are usually worth 15 points each. Make-up quizzes for excused absences *may* be available. See the instructor as soon as posssible.

Textbook practice problems will also be assigned. You should plan to work on these assignments while the related topics are covered in class. *You will be expected to have all of the assigned problems for a particular chapter completed by the class session that follows the session that the chapter is completed in lecture.* In general, these assignments will *not be collected*. You have college-level expectations in this course, so therefore I will not "hold your hand" and collect and grade daily work each period. Students should take the initiative to keep up with their work in order to prepare themselves for quizzes and exams.

Online homework problems for credit will be assigned in **MasteringChemistry**. Each chapter will have one 5 point assignment. Assignment due dates will be announced in class and on the course webpage at least one week in advance.

MasteringChemistry offers hints and step-by-step problem solving. Using a hint does not count against you, but you are awarded a small bonus for every hint you **do not** use. It is to your advantage to use as many hints are necessary for you to understand the problem.

Discussion boards will be set up in D2L for you do discuss problems or questions with your classmates and instructor. You will be required to make at least **one post per chapter in the chemistry content discussions area**, for a total of 10 participation points that will be awarded at the end of the semester. **Questions on chemistry content, homework assignments, lab reports, etc. should be posted to the discussion boards first!** That way I can answer questions for the entire class, rather than just emailing with one student. Often another student will address the concern before I get to it. Please restrict your emails to me to issues involving your own situation, or you may email me if nobody is responding to a pressing question you have posted on the discussion boards.

EXAMS

There will be three 75-minute midterm exams plus one 110-minute comprehensive final exam. Only those topics covered in lecture, laboratory, the reading assignments, or the problem assignments will appear on the exams. Exams must be taken at the scheduled time. ***Make-up exams may only be given in the case of documented emergencies or school sponsored activities, and must be completed before the exams are returned to the class (1-2 class periods following the exam).*** The instructor has the right to refuse a make-up exam. Exams may be

arranged to be taken early, see the instructor as soon as possible if you may need this option. Make-ups may be allowed for excused absences from the final exam ***if the instructor has been consulted in advance***.

The lowest midterm exam score will be replaced with your final exam percent score (if it is an improvement). If you miss one exam, its score will be replaced by your final exam score. You should try your very best for each exam, since you never know when unplanned events may prevent you from taking a future exam. If you miss more than one exam, you should talk to me and seriously consider dropping the course.

The final exam is a standardized general chemistry exam from the American Chemical Society. You must use a **non-programmable** scientific calculator on this exam. A study guide will be provided mid-semester.

ACCOMODATIONS

Alternative testing situations can be arranged for those students with a documented learning disability. Contact the school's disability services office for more information. Please notify the instructor well in advance of the exam if you elect for this service. *The alternative exam time may not be later than the assigned exam time.*

Every effort will be made to provide accommodations for religious observations. Please notify the instructor as far in advance as possible.

Please notify the instructor if you have any issues with loud noises, small explosions, flames, or other concerns.

ACADEMIC DISHONESTY

Cheating or plagiarism of any kind will not be tolerated. Students will be given one warning upon the first instance of any cheating or plagiarism. Any incidents after the warning will result in the exam, quiz, or assignment in question to be given a grade of zero, which cannot be made up. Care will be taken to discuss proper formats for citing sources in written projects as needed throughout the semester. Many lab reports and group projects involve sharing of data and collaboration between several students; these instances do not constitute plagiarism as long as all contributors are listed on the assignment.

STUDYING

"By failing to prepare, you are preparing to fail." -Benjamin Franklin

It is very important that you *discipline* yourself to become an organized, conscientious student who studies regularly. Set aside some time each day and devote it to studying chemistry. Last-minute cramming for cumulative exams usually results in poorer understanding of concepts and lower exam scores.

Read the assigned text ***before*** each chapter is covered in lecture. No matter how clearly the material is presented in lecture, you will not retain the information if that is the first time you see it. By reading the material carefully in advance, the lectures will become entirely more valuable by reinforcing and cementing your understanding of the concepts.

Work the assigned practice problems after each class by yourself, ***without resorting to the answer key!*** If you're stuck, re-read the relevant section of the text, come back to it later, or ask a friend, a tutor, or the instructor for a nudge in the right direction. The struggle to get a problem solved is an integral part of the learning process. Only ***after*** you've gotten an answer you're confident with should you check the answer key.

You should also form or join a study group as a ***supplement*** to your individual studying and practicing. Helping another student with a difficult problem is one of the best ways to reinforce your own learning.

Overall you should try to focus on ***underlying concepts, problem solving skills,*** and ***common themes*** more than simply memorizing facts. You should always view difficulty as a challenge to overcome.

KEEPING TRACK OF YOUR PROGRESS IN THIS COURSE

You should always, on your own, keep track of your scores for all work you do in this course. To determine where you stand in the course, divide the total of your points earned by the total number of points possible. Then multiply by 100. This will give you a percentage which you can use to determine your letter grade.

GRADES

1.	Laboratory	about 150 points
2.	Quizzes/Homework/Participation	about 100 points
3.	Three one-hour exam scores	300 points
4.	Final Exam	150 points
	Total	**about 700 points**

The final grade will typically be based on a total point system with the following letter grades:

A 90.0 % and above
B 80.0 - 89.9 %
C 70.0 - 79.9 %
D 60.0 - 69.9 %
F below 60.0 %

No scores or grades will be curved in this class. Occasionally, the above percentages may be lowered, but will never be raised. In other words, if you get greater than 90%, you are guaranteed an A. An estimate of the letter grade percentages will be given after Exam 2.

Logging In To MasteringChemistry

To access MasteringChemistry for the first time, go to http://www.masteringchemistry.com and click on **"New Students".** Choose your own username and password. The Access Code is available for purchase at the bookstore (either bundled with the text or separately). Alternatively, you may purchase an access code on the website. After you enter that code, you can login to MasteringChemistry.

To enroll in this course, click **"Join Course"** and enter the Course ID **ASPAAS86554**. You can leave Student ID blank.

Your current assignments will then be listed.

A getting started with Mastering Chemistry guide is linked on the course webpage, in the lower left corner.

CHEMISTRY 1061 ASSIGNMENTS

Note: The suggested problem assignments listed below should be considered the *minimum* number of problems that should be completed in your studies. Additional practice should make you more proficient with the course material. Additionally, you will be assigned graded homework problems taken from the text at http://www.webassign.com.

Chap	Title	Reading Assignments	Problem Assignments (End-of-Chapter)
1	*Matter, Measurement, and Problem Solving*	All sections	#9, 11, 12, 13, 14, 16, 24, 27, 28, 37, 41, 45, 51, 57, 63, 65, 67, 71, 81, 85, 91, 107, 109, 115
2	*Atoms and Elements*	All sections	#7, 12, 21, 23, 25, 53, 55, 63, 73, 77, 81, 87, 91, 99
3	*Molecules, Compounds, and Chemical Equations*	All sections	#2, 6 ,9, 11, 14, 17, 23, 29, 33, 39, 41, 45, 47, 49, 51, 53, 55, 59, 65, 69, 77, 85, 87, 93, 97, 99, 111, 117
4	*Chemical Quantities and Aqueous Reactions*	All sections	#1, 5, 9, 10, 12, 13, 22, 23, 25, 35, 43, 47, 49, 53, 55, 61, 63, 67, 71, 77, 79, 83, 87, 95, 101, 111
5	*Gases*	All sections	#1, 4, 6, 12, 14, 15, 17, 19, 31, 33, 37, 43, 47, 57, 63, 67, 73, 79, 81, 85, 93, 99, 121
6	*Thermochemistry*	All sections	#5, 8, 12, 15, 19, 21, 23, 27, 33, 45, 47, 55, 57, 63, 65, 69, 73, 77, 81, 83, 91, 93, 99
7	*The Quantum-Mechanical Model of the Atom*	All sections	#3, 7, 14, 20, 27, 30, 31, 32, 41, 43, 51, 53, 59, 67, 79
8	*Periodic Properties of the Elements*	All sections	#7, 9, 11, 16, 18, 21, 23, 26, 27, 32, 35, 37, 39, 41, 43, 45, 47, 51, 59, 63, 65, 69, 73, 77, 91, 99, 121
9	*Chemical Bonding I: Lewis Theory*	9.1-9.10	#1, 3, 5, 15, 17, 19, 21, 29, 30, 31, 39, 43, 45, 53, 55, 59, 61, 69, 75, 85, 91
10	*Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory*	10.1-10.7	#1, 3, 7, 11, 13, 16, 29, 33, 37, 41, 45, 49, 51, 57, 59, 81, 85

Chemistry 1061 Tentative Lecture, Exam, and Lab Schedule

Changes and updates to this schedule will be announced in class and posted at
http://webs.anokamsey.edu/aspaas

Lab	Monday	Tuesday	Wednesday	Thursday	Friday
Intro/Safety **Exp 3** Spreadsheets 1	Aug 24 Fall semester begins Intro/Ch 1	Aug 25	Aug 26 Ch 1	Aug 27	Aug 28
Exp 4 Spreadsheets 2	Aug 31 Ch 1	Sep 1	Sep 2 Ch 2	Sep 3	Sep 4
No Lab	Sep 7 **School Closed** Holiday	Sep 8	Sep 9 Ch 2	Sep 10	Sep 11
Exp 2 Microscale density	Sep 14 Ch 2	Sep 15	Sep 16 Ch 3	Sep 17	Sep 18
Exp 5 Limiting reactants	Sep 21 Ch 3	Sep 22	Sep 23 Ch 3	Sep 24	Sep 25
Exp 6 Reactions	Sep 28 **EXAM 1** Ch 1-3	Sep 29	Sep 30 Ch 4	Oct 1	Oct 2
Exp 7 Intro to interface	Oct 5 Ch 4	Oct 6	Oct 7 Ch 4	Oct 8	Oct 9
Exp 8 Gas laws	Oct 12 Ch 5	Oct 13	Oct 14 Ch 5	Oct 15 **School Closed** Education MN	Oct 16 **School Closed** Education MN
Exp 9 Titration	Oct 19 Ch 5	Oct 20	Oct 21 Ch 6	Oct 22	Oct 23
Exp 10 Thermochemistry	Oct 26 Ch 6	Oct 27	Oct 28 Ch 6	Oct 29	Oct 30
Project Intro	Nov 2 **EXAM 2** Ch 4-6	Nov 3	Nov 4 Ch 7	Nov 5	Nov 6
Exp 11 Beer's Law	Nov 9 Ch 7	Nov 10	Nov 11 **School Closed** Holiday	Nov 12	Nov 13
Project	Nov 16 Ch 8	Nov 17	Nov 18 Ch 8	Nov 19	Nov 20
Project	Nov 23 Ch 8	Nov 24	Nov 25 Ch 9	Nov 26 **School Closed** Holiday	Nov 27 **School Closed** Holiday
Project	Nov 30 Ch 9	Dec 1	Dec 2 Ch 9	Dec 3	Dec 4
Project	Dec 7 **EXAM 3** Ch 7-9	Dec 8	Dec 9 Ch 10	Dec 10	Dec 11
Project Presentations/ Cleanup	Dec 14 Ch 10 / Review	Dec 15	Dec 16 **FINAL EXAM** Comprehensive	Dec 17	Dec 18

Note: In the event the instructor misses a class, the entire lecture schedule may or may not be adjusted.