Clark College
Spring Term 2009

Chemistry
April E. Mixon

General Chemistry

Course Number: 143 **Office Location:** Science 110 **Class Hours**: TTh: 5:00 p.m. – 6:50 p.m. SCI 123 **Phone: 360.992.2201** **Email:** amixon@clark.edu	**Office Hours:** I have an open door policy. If I am there and able, I can assist you. Of course it is best to email me and make an appointment or drop by: Scheduled times TBA **Other times by appt!**

Required Materials:

1.) Scientific Calculator: NO GRAPHING CALCULATORS ALLOWED!! The bookstore sells the "generic" calculator or you are free to shop elsewhere. This is a department wide policy.
2.) Web Access
3.) Mastering pass-code *your pass-code from 141/142 is still good! Class code: **MCMIXON89798**
4.) 3 ring binder for lecture notes/handouts
5.) Textbook: Tro: Chemistry A Molecular Approach 1st edition (same text as first two terms)

Objectives:

Chemistry 143 is the third course in the three-term General Chemistry series for science majors. Students taking this course must have had a year of chemistry in high school or a year of equivalent science background and must have taken or be able to take college algebra (Math 100) and have successfully completed CH 142 (or its equivalent) with a grade of C or better. *Chemistry is like a foreign language* – you will have to spend TIME learning new words and what they mean in order to understand the material in this course. Students taking 143 are expected to still retain the information covered in 141 and 142, regardless of when you took those courses!!!! Plan on spending **at LEAST** 10 hours a week outside of class on the material presented!!

Lecture time will be used to enhance your background on chemistry. We will examine topics in the textbook as well as some outside. You will be responsible for all material presented in lecture and the corresponding material provided in handouts and in the text. Any material covered in lecture or on in-class assignments can be included on the exams! **There will be no quizzes. Exams will be given during normal lecture times.** You **must come to class with the concept tests printed**!! The concept tests will be available on the class website. We will not take time during class for you to write the questions down – that is what the preprinted questions are for ☺

In-class assignments will center on problem solving with respect to topics covered in lecture. Occasionally a special topic might be introduced if time permits but the majority of time will be spent on question and answer. This is the time to bring all of your questions, homework problems that you are having trouble with, additional problems that you are having trouble with, and questions about lecture topics that you need more information on.

Some of the topics we will explore in this course include:

- Solubility
- Nuclear chemistry
- Thermodynamics
- Entropy
- Spontaneous reactions vs non spontaneous reactions
- Transition Metal Complexes

A successful student in CH 143 will:

- further develop and apply basic chemical concepts in industrial and research settings
- have an appreciation for the historical advancement of chemistry, and its relation to other disciplines;
- have an increased curiosity and appreciation of the surrounding world;
- develop knowledge of basic laws of nature and chemical terms;
- have strengthened mathematical skills due to the application of mathematics in chemistry;
- develop an awareness of the scientific process and an understanding of the way scientists work;
- have an increased appreciation for the integration of chemistry into the global society;
- enhance their written and verbal communication skills;
- have an increased capacity to think critically both qualitatively and quantitatively; and,
- be prepared for future studies in chemistry or related fields.

College Wide Abilities- The College Wide Ability groups are attributes that college faculty want our graduates to develop while at Clark College. They include: Information Technology, Communication, Life-Long Learning, Effective Citizenship, Critical Thinking, and Global/Multicultural. After assessing the course material, we will focus on developing skills for Critical Thinking/Problem Solving, Technology, Effective Citizenship, and Communication in CHEM 141(142 and 143) in the context of material in chemistry. There will be some emphasis on developing the skills necessary for Life Long Learning abilities.

Definition of critical thinking: The disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information. This information is gathered from or generated by, observation, experience, reflection, reasoning and/or communication.

Clark College Drop/Withdraw Policy:
If you are withdrawing from the class (or college) you must file and Add/Drop form with the registrar's office. If you formally drop the class **by the fifth day of the term** (that means Friday of the first week for this class), you will be refunded 100% of the charges. If you drop the course after the fifth class day up until the 20th calendar day of the quarter, you will receive a 50% refund. If you withdraw after this date, then you paid for the class. Students who formally withdraw are assigned a grade of "W" by the computer.

Important Registration Dates:	Friday, April 10	Last day to drop with 100% refund.
	Friday, April 24	Last day to drop with 50% refund
	Friday, May 22	Last day to withdraw.

If you received financial aid or veteran's benefits PLEASE talk with associates at the appropriate office to determine what effects on eligibility dropping a course will have. Don't jeopardize your eligibility!! It's better to be on academic probation for a term than to lose financial aid eligibility!!!!!!! You can contact the Financial Aid Office by calling 360.992.2153 or by visiting the Financial Aid Office in Gaiser Hall. **If you stop attending the course without formally withdrawing you will continue to accumulate grades (of zeroes for al assignments not turned in) and will receive the grade assigned by the instructor.** You will also be held accountable to all charges on your account. Bottom Line: If you do not formally drop I don't know that!! From my perspective all I see is someone who isn't attending class or turning in assignments – so remember to DROP if you decide to do so!!

NOTE: **Instructors may drop a registered student from a class if the student fails to attend one or more sessions during the first week of the quarter (unless prior arrangements have been made). This "No-Show" policy is one of several procedures Clark College is using to stay within a state-mandated enrollment band while meeting the needs of a maximum number of students.**

Campus Resources:

Library	Tutoring Center	Writing Center	Multicultural Center
phone 992.2151	phone 992.2253	phone 992.2253	Phone 992.2284

Students with Disabilities

If you have a disability and need an accommodation, please make arrangements to meet with your instructor outside of class to discuss your specific request. A request for accommodation may require that documentation of the disability be reviewed by Disability Support Services (DSS). DSS can be contacted at 360-992-2314 (360-992-2835 TTY), or you may go to their offices located in the "T" Building. Information can be found through the Clark Web:

http://www.clark.edu/student_services/disability_support.php

I do not need to know the extent of any disability that you may have, but any accommodations MUST come through this office and special accommodations are not retroactive. Such, if you have a disability that states that you can be allotted extra time on an exam, but you do not notify me of this until after the first exam, you will not be allowed to retake that first exam with more time.

Homework:
Plan on having homework assigned at the end of each class period. As we meet twice a week, you will be assigned a larger homework assignment on the TH of the week and a smaller HW assignment on Tuesday of the week. Every class period (T and TH of each week) you will have OWL homework. (PLEASE pay attention when doing your Mastering homework! Only **required** work must be completed, there are optional and extra credit assignments that will be available as well – but only REQUIRED work MUST be done! Also, please pay attention to due dates. Occasionally I will post HW that has the same start date but has different due dates! One of the days will be earlier than the other!! This will give students the opportunity to work ahead if they would like – especially in the beginning of the term when this material should all be review!!!)

In addition to online homework questions, you will also have "paper" homework questions on TH of each week where to will need to solve problems. You MUST show all your work to me on the paper assignments!! I cannot see how you are solving the problems when you are using Mastering. Paper assignments will give me the opportunity to make sure that you are indeed solving the problems correctly and not getting the answers by luck ☺ There will be NO homework assigned on the day of an exam. So if you have an exam on a Thursday, you will not have homework that evening, you will have other work to do instead.

For the most part, the homework questions will be on material covered in lecture that day. Occasionally we will fall a little behind or I may even want you to look a little ahead and therefore the homework may require you to stretch your minds a little. I promise that it will NOT be more than you can handle, but I want you to be aware that homework and lecture may not align perfectly every time!

You will rewrite/summarize what the question is asking you and then answer the question below. CIRCLE or BOX your final answer. SHOW ALL WORK!!! I must be able to follow your work flow in order to give partial credit. Write neat, be clear. Write in pencil and erase all mistakes. Do not scribble out the work/answers, erase or rewrite if necessary. If I can't read it, I can't grade it so keep that in mind when doing homework, quizzes, and exams!
Example:

1. Determine the color of the sky, given a typical transition energy of 3.75×10^{-19} J.

$$\Delta E = h\nu = \frac{hc}{\lambda}$$

$$3.75 \times 10^{-19}\ \text{J} = \frac{(6.626 \times 10^{-34}\ \text{J}\cdot\text{s})(2.998 \times 10^{8}\ \text{m/s})}{\lambda}$$

$$\lambda = 5.30 \times 10^{-7}\ \text{m}$$

$$5.3 \times 10^{-7}\ \text{m} \times \frac{1\ \text{nm}}{10^{-9}\ \text{m}} = 530\ \text{nm} \leftarrow \text{Blue}$$

The Sky is blue

Homework is **DUE** at the beginning of class. Homework turned in at any other time is considered to be late and will NOT be accepted. Homework is to be completed BEFORE you walk through the classroom door. When I am ready to start class, all homework will be turned in. Homework turned in at any other time will not be accepted.

Mastering homework is due by the date posted. I will try to keep assignments posted ahead of schedule so if you would like to work ahead, you have the ability to do so. If you miss a due date, you can still complete the Mastering assignment, but you will receive -10% per day it is late, with a maximum loss of 50%.

Paper homework will only be accepted in class the day that it is due. Answers will be posted the day that the paper homework is due.

If you need to turn in assignments to me but can't find me, you should turn them into my mailbox. You MUST time stamp the assignment showing when it was turned in, otherwise, if I don't check my mailbox, I don't know when it came in and you run the risk of your assignment being graded late!!

Exams:
There will be FIVE exams this term, barring any time constraints. The first two exams will have a take home portion and an in-class portion, the mini-exams will be "my" version of a final exam spread over 2 days, there will be no take-home portions. You are expected to perform the take-home portion alone. You may consult textbooks, the internet, any reference you would like but NOT a living breathing person – NO other instructors, no husbands, wives, tutors, friends, significant others, children, relatives, etc!! In general, the in-class portion will be given before the take-home portion but that may not always be possible. The day of the take-home you will not have a homework assignment. Take-home exams will be found on the class website. The last exam will be the ACS standardized final exam.

Your first two tests will cover between 2-3 subjects; HOWEVER, the exams are cumulative throughout the term. I WILL go back and ask you questions about Exam 1 material on Exam 2. I will ask you questions on material covered on Exams 1 and 2 on the mini exams. The ACS standardized final IS cumulative for the ENTIRE YEAR of general chemistry!!!

Make up exams: Two types of make-up exams will be given: if I know of the absence ahead of time and we have made arrangements (e.g. you get sick Sunday night before the exam, you are on a sports team) you will receive

Make-up exam type I: it will be based on the exam format that the regular class will receive. The exam MUST be made-up BEFORE the next class period at a time that also works with MY schedule. If you miss an exam on Thursday, you have until the following Tuesday to make up the exam at a time that works for BOTH of us (unless I can find a different proctor for the exam). If you do not take the exam BEFORE the next class period, you may still take the exam but you will lose 15% off your exam score, REGARDLESS of the reason for missing the exam (you will lose 15% if you cannot take the exam before Tuesday because you were unable to find a time that works with my schedule). Exams are not returned to the students until everyone has taken the exam, and this is a major inconvenience to your fellow students. If you know that you are going to miss an exam and would like to take it early (within reason!!), that is also acceptable, but again, we must find a time that works with both of our schedules!

Make-up exam type II: If you do not contact me prior to the exam you can take a make-up exam also, but the rules change a bit. You automatically lose 15% off your exam score and you MUST take the exam before the next class period. No exceptions!!

Class Assignments: As the term winds down, we will complete in-class assignments. You will be divided into small groups and perform the assignments as a unit. Only 1 "answer" sheet will be turned in per group. If you miss a class-activity you will earn a ZERO on that assignment. This counts towards your overall grade – therefore – do not miss class and you will not miss an assignment! Because the purpose of this assignment is to work together in groups, anyone who misses class, regardless of the reason, is not eligible to make this assignment up.

These points fall under class participation, and if you miss class (even for an excused reason) you are still not participating. In the grand scheme of things, missing one in-class assignment will not be a grade determining factor. The bulk of your in-class activities will come from the end of the term!

Paper:
Each of you will write a paper. The paper will be on anything you choose as long as it pertains to science!! (5 pages of **information** double spaced minimum, 10 pages double spaced maximum). More details on the paper (and suggestions for topics) can be found on the class web site. Those of you that had me for 142, you may use the same topic that you picked for your annotated bibliography assignment! If you turn in your paper late, you will begin with a grade of a B and lose points from there. Every week that your paper is late will result in a markdown of 2 points/week. The last day to turn in your paper is the day of the final.

Attendance Policy:
Attendance is mandatory for lecture. For lecture: I understand that at times things "come up". And in the grand scheme of things, missing an in-class assignment or completing a few Mastering homework assignments late will not be grade determining factors. Class notes are available at all times and you can always email me regarding the material covered in class that day.

In addition: If you are not registered for the class, you are not legally allowed to attend lecture (or lab). This is a LIABILITY issue and there are no compromises! Register for class or you will be asked to leave. You are not allowed to register for a class after the 10th day of the term, so do not procrastinate on registering!

Clark College has adopted a no-show policy. Students who fail to attend one or more sessions during the first five (5) days of the quarter may be dropped from the class. If you let me know ahead of time that you will need to miss class I will NOT drop you. If you stop attending during the first five days I MAY/RESERVE the right to drop you from the class. If there are people that want to get into the class, then I may drop you for nonattendance. If there is space still available, I may not. Ultimately, if you decide to stop attending class and you wish to not be involved in this class any longer, the burden of responsibility for dropping the class rests on your shoulders. Do not expect or assume that if you stop attending the first week that I will drop you. I may, but if I do not, you are still responsible for the class (grades, payment etc . .)

Grading Policy:
Grades will be determined as follows:

Paper Homework assignments	= 10 %	Grading Scale
Mastering Homework assignments	= 10 %	A 89.5-100 %
In-Class activities/Participation	= 10 %	B 79.5-89.4 %
Exams 1,2 @ 100 pts	= 30 %	C 69.5-79.4%
Mini-tests 1, 2 (my "final")	= 15 %	D 59.5-69.4%
Final Exam	= 15 %	F 59.4% and below
Paper @ 75 pts	= 10 %	
		Clark uses the +/- system
Total % for term	100%	

In-class examinations and mini-exams are worth a total of 45% of your overall grade
Homework is worth 20% of your overall grade
Papers are worth 10% of your overall grade
In-Class Activities are worth 10% of your overall grade
Final Exam (ACS standardized) is worth 15% of your overall grade

Final Grade tabulation:

% earned for ACS standardized final _____	* 0.15 =	X
% earned for in-class examinations _____	* 0.30 =	Y
% earned on mini-exams _____	* 0.15 =	Z
% earned for homework assignments_____	* 0.10 + 0.10 =	A
% earned for paper assignment _____	* 0.10 =	T
% earned for in-class activities _____	* 0.10 =	P

Final Grade will be the sum of X + Y + Z + A + T + P

This will be your % out of 100 earned in the class and can be translated to a letter grade as determined above. (I reserve the right to use or not to use the +/- grade system example: 69.5% - 72.4% earns a C- and 78.5% - 79.4% is a C+ with all grades from 72.5% - 78.4% earning a C. This is a realistic grading scheme for the +/- system for all grade ranges)

Other Grades:

Incomplete: Only will be issued if 90% of the work for the class is COMPLETED by the end of the term AND the student makes arrangement to complete the remaining work. After 1 year, the "I" grade become a No Pass.

Course Web Page:
You can find the course web page online at http://web.clark.edu/amixon It will be updated as necessary with course materials, class information, class notes as word documents (trying to turn them into PDF's crashes Adobe – sorry!!), homework problems, take-home exams, answer keys etc . . . There are computer labs strategically placed around campus – go there if you are having trouble accessing the website or having trouble printing things. My notes are long and extensive, if your printer cannot handle the size, these are the perfect places to go!

Cheating Policy:
Academic cheating, PLAGIARISM, or aiding or abetting cheating or plagiarism is unacceptable. Clark has adopted an Academic Integrity Policy. You can find this online at the class web site. You must read and understand the policy, sign, date and return the bottom of the signed page to me.

> The scientific community is built upon collaboration with ones' peers for support and guidance. I encourage you to work with other students and collaborate with each other for assistance. However, the work to be in lectures, recitations and at home must be your own work, written in your own words. You should always be prepared to explain the rationale behind your work. Any cheating incidents will handled on a case-by-case basis and may result in a failure on an assignment or in the course, removal from the class or the college, as defined in the Clark College Student Code of Conduct. The Code can be found in the General Information section of the Clark College website (http://www.clark.edu/gen_info/policies/student_code.html) or can be obtained from the Office of the Vice president of Student Development (x2103).

In addition to this policy, no hats may be worn on exam days

AGAIN!!! You are encouraged to form study groups, make friends, get together, and work together on all assignments EXCEPT FOR the take home exams. However, all answers should be in your OWN words!!

Tentative Class Schedule

Week	Date	Lecture Topic	Reading	HW
1	04/07	Intro: syllabus: Acids and Bases - titrations	16.4	Mastering
1	**04/09**	K_{sp} and solubility	16.5-16.8	**Mastering and paper HW 1**
2	04/14	K_{sp} and equilibrium, qual schemes	CH 16.5-16.8	Mastering
2	**04/16**	Thermochem/ Thermodynamics and Entropy	CH 6 and 17	**Mastering and paper HW 2**
3	04/21	Gibbs	CH 17	Mastering
3	**04/23**	**Exam 1: Chapters 18, 6 and 19 (and 1, 2, 3, 4)**		Take home exam (on web)
4	04/28	Redox	CH 18	Mastering
4	**04/30**	Redox	CH 18	**Mastering and paper HW 3**
5	05/05	Redox/ Transition	CH 18, 24	Mastering
5	**05/07**	Transition	CH 24	**Mastering and paper HW 4**
6	05/12	Transition	CH 24	Mastering
6	**05/14**	Transition/Nuclear	CH 24 and 19	**Mastering and paper HW 5**
7	05/19	Nuclear	CH 19	Mastering
7	**05/21**	**EXAM 2: CH 20, 22, 23, and (1-4, 5, 7, 8, 9, 10)**		Take home exam (on web)
8	05/26	Nuclear	CH 19	Mastering
8	**05/28**	Review		**Mastering and paper HW 6**
9	06/02	**Mini Test 1**	141 and 142	No take home exam!
9	**06/04**	**Mini Test 2**	142 and 143	
10	06/9	Review		
10	**06/11**	Review		
11	06/16	Final Exam: TUESDAY, 5-6:50 pm		

This schedule is subject to change however, exams occurring on Thursdays, with take home exams given and then due the following Tuesday is a 99% sure thing.