CHEM 121a **General Chemistry I** Fall 2009

Instructor:	Dr. Thomas C. Holovics
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Lecture Times:	MTRF in SL 3114 11:00 a.m. – 11:50 a.m.
Office Hours:	MTThF 9:00am – 10:00am & 2:00pm -3:00pm
Course web page:	http://blackboard.siue.edu
Prerequisites:	(1) High school chemistry (or successful completion of CHEM 113). (2) Successful placement based on the ACT Math Score OR successful placement by the Chemistry Readiness Exam OR successful completion of CHEM 113 and MATH 120 or higher MATH course.
Laboratory:	You should be concurrently enrolled in CHEM 125a (or have passed previously).
Note:	A grade of C or better is required to proceed to CHEM 121b.

Textbook:

- Hill, Petrucci, McReary, & Perry. *General Chemistry*, 4th ed. Prentice Hall ISBN 0-13-140313-3. Available at Textbook Rental.

Required Supplemental Material:

- Gosser, Strozak, & Cracolice. *Peer-Led Team Learning: General Chemistry*, 2nd ed. ISBN 0-13-146444-2. Available at Bookstore.

- Holovics. *General Chemistry I Lecture notes*, CB 24787 Available at Bookstore.

Recommended Supplemental Materials:

- Topich, J. *Selected Solutions Manual: Chemistry*; 3th ed; Prentice Hall: Upper Saddle River, NJ, 2001. ISBN 0-13-088532-0. Available at Textbook Rental.

Course Description and Objectives:

Welcome to CHEM 121a, the first semester in the General Chemistry sequence. These courses are university-level modern chemistry for students majoring in science. CHEM 121b builds on the content of this course, so throughout the course I will make references to material covered in CHEM 121b. This semester's topics include matter and measurement; atoms, molecules, and ions; formulas, equations, and moles; reactions in aqueous solution; gas properties; thermochemistry; periodicity and atomic structure; ionic bonds and some main-group chemistry; covalent bonds and molecular structure; liquids, solids, and phase changes.

The objectives of this course include that each student in the class should:

1) Develop knowledge and skills necessary to progress to more advanced science classes.
2) Develop problem-solving skills that are important for all scientists.
3) Develop an understanding of and an appreciation for the connections of chemistry with other disciplines and with everyday experiences.
4) Build confidence in doing and learning chemistry.

Grading: The overall course grade will be calculated out of 1000 points as follows:

Exams	4 Unit Exams x 150 points each	=	600 points	60%
	1 cumulative Final Exam x 150 points	=	150 points	15%
Workshop	12 workshops x 8 points each (and 1 x 4)	=	100 points	10%
Homework	10 x 10pts each	=	100 points	10%
Quizzes	Best 5 quizzes x 10 pts each	=	50 points	5%
	Total	=	1000 points	100%

Grading is not competitive – there is no "curve". Grades are assigned based on the following cutoffs, which may in the end be lower but not higher:

A ≥ 85% (850 pts) > **B** ≥ 75% (750 pts) > **C** ≥ 65% (650 pts) > **D** ≥ 55% (550 pts) > **F**

Examinations:

Exam 1	Thursday, September 17	Chapters 1, 2, & 3
Exam 2	Thursday, October 15	Chapters 4, 5, & 6
Exam 3	Thursday, November 12	Chapters 7, 8, & 9
Exam 4	Thursday, December 10	Chapters 10 & 11
ACS Final	Wednesday, December 16	10:00 – 11:50 a.m. (registrar determined)

The 4 exams during the semester will include conceptual and problem solving questions from lecture material and assigned readings. Many (*but not all)* of the problems will be similar (*but not identical*) to problems assigned in lecture and homework. Although each exam will focus on the specific chapters outlined above, learning subsequent chapters requires building up from a knowledge base of previous chapters. In other words, material from previous chapters can show up on later exams. The final exam is a standardized multiple-choice exam published by the American Chemical Society and will cover all material in this course. The final exams are scheduled according to the published university dates.

If you know you will have to miss an exam, contact your instructor *as soon as possible* to arrange a time to take the exam early. Any exam missed without a legitimate excuse is scored a zero. Students are responsible for rescheduling in a timely manner.

Exam Regrade Policy:

If you feel that the scoring of an exam was in some way inaccurate, you may submit a request for a regrade within 7 days from the date that the exam is returned. On the front cover page of your exam, write an explanation for the reason for the regrade request and put it in to my gold mailbox (outside the chemistry office SL 2325). Your instructor also reserves the right to regrade the entire exam, not just the part where you think an error has been made. Exams may be photocopied before they are returned.

Calculator Policy:

Non-programmable calculators are allowed for all examinations. The problems encountered in General Chemistry do not require programming capabilities; any basic calculator with square root, exponent, and logarithm functions (base ten and natural log) will be sufficient. Non-programmable scientific calculators are available at many stores (Target, Walmart, OfficeMax, etc.) for about $10.00. I would recommend the TI-30XIIs. You may not use a cell phone, PDA, or any other electronic device which has a function other than a calculator during examinations. **You should bring your calculator to every lecture.**

Workshops:
All students in CHEM 121a are required to attend their weekly assigned one-hour workshop. The workshop is based on the Peer-Led Team Learning (PLTL) model. In PLTL, a group of six to ten students interact to solve carefully structured problems under the guidance of a peer leader. The peer leader is a student who has done well in the course previously. Each workshop involves activities designed to focus on central ideas to help students attain the course goals.

For each workshop session, you will earn a score of 8 points for proper participation. The following are the expectations of proper participation to receive full credit:

- You must have completed all the self-tests for that unit prior to coming to workshop.
- You must bring your workbook and textbook to each workshop session.
- Your group must work through and discuss the assigned problems for each workshop period.
- You must work for the entire 50 minute period. If you finish the assigned problems quickly, you can work on other problems in the unit or work on problems from the textbook. If your whole group decides to leave early, your whole group will lose points.

The assigned unit for each workshop can be found on the Workshop Schedule which is the last page of this document. At the end of the semester, your workshop point total (out of 100 points) will be used in calculating your final course grade.

Homework:
Regular problem solving work, both calculations and reasoning, is essential to deepening your understanding of chemistry. You are strongly encouraged to work problems from the textbook, checking your answers and bringing questions to workshop leaders, tutors, and the instructors until you feel comfortable with the course content.

To reward the consistent effort that keeping up with course material requires, and to encourage making that consistent effort, there will be regular online homework through the Blackboard course site. There will be a total of 10 homeworks each will be worth 10 points (for 100 points total). These HWs are designed to help you learn to do long answer problems through calculations problems and understanding concepts through multiple choice problems. Although you must complete your own HW and your HW will be different from your classmates, I would encourage you to form study groups to help with your understandings of the problems. Study groups can be a very good learning tool.

You will be able to repeat each homework as many times as you want **till the due date/time**. As you "submit" the homework your grade will then and only then be entered into your grade book. Your HW must be "submitted" before the deadline (NO exceptions ie computer issues). I would encourage you to "save" your individual answers as you go. If you have an open homework it will display as a pad lock in the grade book (note this is worth a score of 0). You may open the homework browser as many times as you wish and if you "save" your answers they will stay there until you submit your homework. After your HW has been submitted you may choose to repeat the homework to obtain a better grade, but as soon as you open a new HW, your score goes back to zero until it is resubmitted.

When you are reporting non-multiple choice answers, please do not include units in any of your answers. Also use at least 3 sig figs. Try not to do any rounding till the very end of the problem. BB scientific notation should be entered as 1.342E-5 (for 1.342×10^{-5}).

Quizzes:
Throughout the semester, pop quizzes will be given as appropriate to encourage you to keep up with the material, attend class and help you and the instructor assess your progress. **Regular attendance is required in this course; if you miss class and miss a quiz you will receive a zero for that quiz.** I understand that unforeseen events do occur, so your lowest quiz grade will be dropped (we will take 6 quizzes and only 5 will count). There will be no make-up quizzes so regular attendance is highly encouraged.

Attendance and Make-Up Policies:
Regular attendance at lecture is required for success in this course. Should you be unable to attend class on an EXAM date due to a foreseeable circumstance (such as athletic competition, court date, etc.) contact your professor BEFORE THAT CLASS to make alternate arrangements for an exam. Should you miss an Exam due to an emergency, contact your professor (with some sort of proof of your emergency) immediately after class. **There will be no make-ups for missed quizzes.** If you happen to miss class (not on an exam date) you do not need to contact your instructor, just try to obtain the notes you missed from a friend or blackboard.

Demonstrations and Computer Animations:
Chemical demonstrations and computer animations may be presented throughout the term. The material covered in demonstrations and animations is important, and will be included on examinations.

Tutorial Assistance:
The Department of Chemistry offers tutors in room SL 1109. Check the schedule posted outside of the tutor room for more details. You may be asked to fill out a card as part of our monitoring of the tutoring system; this is the only way the chemistry department will find out if there is a tutor that is not helpful. If a tutor is not present during their scheduled time, please report this to the Chemistry Office, SL 2325.

Students with Disabilities:
Southern Illinois University Edwardsville offers a range of resources to support students with disabilities. At SIUE every effort has been made to eliminate barriers to learning and help you reach your educational goals. Early planning and testing will ensure that your special needs are taken into consideration and that you enjoy your educational experiences at SIUE. Disability Support Services offers to coordinate support services for self-identified students with permanent or temporary disabilities. Students must register and request services from the Disability Support Director at the DSS office, which is located in Rendleman Hall, Room 1218 (www.siue.edu/DSS). An individualized accommodation plan is developed according to each student's needs. Requests for services should be made two to four weeks prior to the date that the service is to begin. If you plan to take an exam at the DSS center you must present the Yellow DSS form at least 2 days prior to the exam.

Students with Test Anxiety or Study Skills concerns:
Instructional Services (Peck Hall, Room 1404; www.siue.edu/IS) run seminars and have other assistance available for students who are working to build up their study skills and ability to handle stress. Counseling Services are also available at their main office, located at the junction of North University Drive and Lewis Road; or at their satellite office at the Health Services located in the lower level of Rendleman Hall.

Dropping from the course:
Deadlines for withdrawing from this course follow the guidelines published by the university. See the calendar at the end of the syllabus for the specific guidelines. In case of any inconsistencies, the correct version is that on the SIUE website (www.registrar.siue.edu).

Academic Misconduct by Students:
Faculty members retain their traditional authority to take disciplinary action in the event of academic misconduct such as cheating, plagiarism, or classroom disruption. In the event of academic misconduct, the instructor may request the Student Assessments and Standards Committee of the Department of Chemistry to impose on a student the sanction of a failing grade on an individual assignment or on a course as a whole. The Chair of the Department may recommend to the Dean of Students other sanctions such as dismissal from a major or from the University.

Classroom behavior:
So that all students in the course can experience an academic environment conducive to learning, the following classroom policies will be in effect:

- Entering or leaving a room at times other than the announced beginning and ending of the class is disruptive. Do not gather your belongings until your instructor has announced that class has finished because this is disruptive.
- All cell phones, beepers, and pagers are to be turned off while you are in class.
- The following behaviors are generally considered disruptive by your fellow classmates and your instructor: whispering, talking, sleeping, eating (drinking quietly is okay), or doing completely off-task things such as reading the newspaper ect. Your instructor will ask you to stop doing these things during class and will ask you to leave if the disruption persists.
- **Late to class:** I understand unexpected emergencies happen from time to time and you might be running late. You are welcome to enter the class room if you are running late (better late than never), however please use the entrance on the third floor (SL 3114) and sit in the back of the classroom. Entering on the third floor will be the least disruptive towards your classmates and your professor. Coming late to class as a regular occurrence will not be tolerated.

How to do poorly in this course:

Instructors have seen the following behaviors too many times. Students who generally try these things do not do well in this course:

- Skip class often, assuming you can just copy the notes from friends.
- Show up for class only on quiz /test days.
- Wait until right before the exam to begin studying.
- Think that you understand the material without working lots of problems.
- Stop coming to class after getting one good grade. One A cannot balance out 4 F's.
- Expect to catch up after missing much of the semester. Since chemistry knowledge is cumulative, people who fall behind tend to stay behind.
- Wait until the last week of class, come into the professor's office and say, "I think I'm flunking your course. What should I do?" By then, it's too late.
- Even worse, ask this after the final exam!

How to do well in this course:

Recognize from the start that chemistry is a subject that requires a lot of time and work. At the university level, you earn a grade based on your demonstrated mastery of the material, not on how hard you try. With that said, instructors have a compiled a few suggestions that will help you to be successful in this course:

1. *Recognize the time commitment*.
   As stated in the SIUE 2006-2007 Undergraduate Catalog on page 17, "Undergraduate students are expected to spend at **LEAST** two hours of preparation for every hour in class." Therefore, you should not expect to pass CHEM 121a if you do not spend *at the very least* **eight hours a week** outside of lecture studying for this course.
2. *Take an active part in class*.
   Come to class prepared to take notes and solve problems each day. Actively answer questions presented to you and ask questions to clarify material you are unsure about. Even if you are shy about raising your hand in class, your instructor will stop and ask many questions during lecture for you to think about. Actively think about how you would answer these questions rather than wait for the answer. This will help you stay involved and will allow you to determine how well you understand the material.
3. *Remember that learning is your own responsibility.*
   The professor will help you out as much as possible, but the professor can't learn it for you. Paying for a university course is like buying a health club membership. Simply making the purchase does not entitle to you to a great physique. A personal trainer can show you what you need to do, but it's up to you to work out regularly if you want to see any results. Also, you can't watch a personal trainer lift weights and assume it will be just as easy for you. Similarly, you will have to work chemistry homework problems yourself on a regular basis to see any results in this course. Don't fool yourself into thinking that by watching the instructor solve a problem you understand it.
4. *Work the problems*.
   The number one reason why students fail chemistry is that they don't work enough problems. Practice with the examples in the textbook. The self-assessment questions at the end of each chapter are an excellent review of the concepts. Practice with enough problems so that you can work a problem for beginning to end without relying on notes or the solutions manual.
5. *Get help!*
   Don't be afraid that you will look stupid if you ask your professor if you are having trouble. It's smarter to get help when you need it than to try to do without it. You can make your sessions with the professor more effective if you have specific things to ask about such as "I tried to work problem 23 but I keep getting 194 instead of 7.2" or "I don't understand why you multiplied by 4 in this example" rather than "Help me, I'm lost" or "I don't get chapter 8." Make use of study partners, workshop groups, and the tutoring room as other sources of help.
6. *Have a good attitude*.
   It is easy to say that you hate chemistry, but if you make this choice, you will find it harder to study and attend class. Who wants to spend time with something they hate? There is something fun and interesting in every subject if you allow yourself to see it.

Tentative Lecture and Exam Schedule

Monday	***Tuesday***	***Wednesday***	***Thursday***	***Friday***
August 24 Syllabus	August 25 Chapter 1		August 27 Chapter 1	August 28 Chapter 2
August 31 Chapter 2 **HW ch 1 DUE**	September 1 Chapter 2		September 3 Chapter 3 **HW ch 2 DUE**	September 4 Chapter 3
Sept 4th is the deadline for dropping a course without it appearing on your transcript.				
September 7 NO CLASS Labor Day	September 8 Chapter 3		September 10 Chapter 3	September 11 Chapter 3
September 14 Chapter 3	September 15 Review	**HW ch 3 DUE**	September 17 **EXAM ONE**	September 18 Chapter 4
September 21 Chapter 4	September 22 Chapter 4		September 24 Chapter 4	September 25 Chapter 4
September 28 Chapter 4 **HW ch 4 DUE**	September 29 Chapter 5		October 1 Chapter 5	October 2 Chapter 5
October 5 Chapter 5 **HW ch 5 DUE**	October 6 Chapter 6		October 8 Chapter 6	October 9 Chapter 6
October 12 Chapter 6	October 13 Review	**HW ch 6 DUE**	October 15 **EXAM TWO**	October 16 Chapter 7
October 19 Chapter 7	October 20 Chapter 7		October 22 Chapter 7	October 23 Chapter 7
October 26 Chapter 8 **HW ch 7 DUE**	October 27 Chapter 8		October 29 Chapter 8	October 30 Chapter 8
October 30 is the deadline for withdrawing without instructor permission with a grade of W.				
November 2 Chapter 9 **HW ch 8 DUE**	November 3 Chapter 9		November 5 Chapter 9	November 6 Chapter 9
November 9 Chapter 9	November 10 Review		November 12 **EXAM THREE**	November 13 Chapter 10
November 16 Chapter 10	November 17 Chapter 10		November 19 Chapter 10	November 20 Chapter 10 **HW ch 9/10 DUE**
November 20 is the deadline for withdrawing with instructor permission with a grade of WP or WF.				
	November 23-27: NO CLASS—THANKSGIVING HOLIDAY			
November 30 Chapter 11	December 1 Chapter 11		December 3 Chapter 11	December 4 Chapter 11
December 7 Chapter 11	December 8 Review/evaluations	**HW ch 11 DUE**	December 10 **EXAM FOUR**	December 11 Review
FINAL EXAM: Wednesday, December 16 10:00 – 11:40 a.m. in the lecture hall **Registrar sets dates: http://www.siue.edu/registrar/schedules/examschedule_fa09.shtml**				

Workshop Schedule

Below are the units to be completed for each workshop. *Before coming to workshop*, you need to complete all the self-tests for that unit. After checking your self-tests, you leader will guide you through selected problems in that unit. As an incentive to faithfully completing these assigned problems, one question on each exam will be similar to one of these workbook problems.

Week	*Workshop*	*Dates*	*Unit*
1	na	8/24−8/25	**No Workshop**
2	1	8/31−9/1	**Unit 2: Atoms and Subatomic Structure**
3	na	9/7−9/8	**No Workshop Labor Day**
4	2	9/14−9/15	**Unit 4: Strategies for Stoichiometry**
5	3	9/21−9/22	**Unit 5: Ions in Solution**
6	4	9/28−9/29	**Titrations and Gas Laws Worksheet**
7	5	10/5−10/6	**Unit 6: Gases: Nature, Laws, and Applications**
8	6	10/12−10/13	**Unit 7: Thermochemistry**
9	7	10/19−10/20	**Unit 8: Energy and the Hydrogen Atom**
10	8	10/26−10/27	**Unit 9: Building Atoms with Quantum Leaps**
11	9	11/2−11/3	**Unit 9: Building Atoms with Quantum Leaps**
12	10	11/9−11/10	**Unit 10: Covalent Bonding**
13	11	11/16−11/17	**Unit 11: The Structure of Molecules**
14	12	11/30−12/1	**Solids Worksheet**
15	13	12/7−12/8	**Review for Final/Leader Evaluations (worth 4 points)**