

CHEMISTRY 111 / F09

Section 015

Dr. Andrew Pounds,

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Office Hours: W 2:00-3:00 (CSB), R 1:30-3:30 (WSC), (or by appointment)

CHM 111 is the first course in a two-part sequence to introduce students to the foundational principles of Chemistry. Students in CHM 111 will be exposed to the fundamental laws of mass and energy conservation and their application to chemical systems and reactions. Students will also be introduced to various models of atomic and molecular structure and, within these contexts, shown how these models can be used to explain and predict elemental and molecular properties. Students in CHM 111 are expected to read at the college level and also set up and solve algebraic and trigonometric equations. For that reason, MAT 133 (Precalculus) is a corequisite for the course. Upon completion of this course, a student will demonstrate competence in each of the following areas:

- solving chemical problems,
- understanding chemical concepts from the lecture by successfully applying these concepts on homework and tests,
- making accurate physical and chemical measurements in the laboratory, and
- writing clear and concise laboratory reports.

Class Meeting Times and Locations

Lecture: MWF 9:00–9:50 a.m., WSC 310
Lab: R 9:25 – 12:05 p.m., WSC Room 302

Course Materials

General Chemistry: An Integrated Approach, Hill, Petrucci, McCreary and Perry 4th ed.,
Laboratory Notebook (numbered, carbonless pages, available at bookstore)
Scientific Calculator
Laboratory Instructions (From WWW)
Approved Safety Glasses/Goggles
Lock (for lab drawer)

Course Structure

Ten chapters of the text will be covered during the semester in the order listed on the class schedule. The lecture time will be used to expound on and augment the text and also discuss problem solving strategies. Students are responsible for all material covered in class as well as the material from the textual sections listed in the class schedule. While homework will not be collected, students are encouraged to complete as many problems as possible to gain competency with the material. Several unannounced in-class quizzes will be given during the semester. The best five grades from the quizzes will count toward the final grade. Five 50 minute exams will be given per the schedule and the best four exam grades will count toward the final grade. A three hour final exam will be administered at the end of the term.

Grading

Tests (best 4 @ 100 pts)	400 pts
Quizzes (best 5 @ 25 pts)	125 pts
Laboratory (10 @ 25 pts)	250 pts
Final Exam	225 pts

Total Possible	1000 pts

Grade Scale

A	≥900 pts
B	≥800 pts
C	≥700 pts
D	≥600 pts
F	<600 pts

The above grading scale is assured, but may be *slightly* lowered based on class exam performance.

General Information

Honor Code: All students in CHM 111 are expected to adhere to the Mercer University Honor Code. Any suspected violations will be reported to the Honor Council for further investigation.

Attendance: Except for the first day of the semester, attendance will not be taken. However, students are still accountable for all material covered in class as well as any announcements made during the lecture period. If you think that you might have the H1N1 virus, please contact me via e-mail and then contact Student Health Services and the associate Dean of CLA via phone.

Missed Quizzes: No makeup quizzes will be given.

Missed Exams: Anyone missing an exam for *any* reason (personal illness, death in the immediate family, or other emergency) must notify Dr. Pounds in advance. The absence will be considered unexcused otherwise. Make-up exams will be individually scheduled.

Partial Credit: Partial credit will not be awarded on any quiz, exam, prelab, or lab report unless individuals show their work and clearly delineate how they arrived at their answers.

Re-grading Policy: If a student suspects that an error was made in the grading of a submitted work, they may return the paper for re-grading with the understanding that the entire work will be re-graded and not only the portion in question.

Posting of Grades: Point totals will periodically be posted in *BlackBoard*.

E-mail Listserve: I maintain an e-mail listserve which I use copiously to send information to the class and which you can use to communicate with each other. To sign up for the listserve and to learn how to send information to it, please go to: <http://theochem.mercer.edu/mailman/listinfo/chm111>.

American Disability Act: "Students with a documented disability should inform the instructor at the close of the first class meeting or as soon as possible. If you are not registered with Disability Services, the instructor will refer you to the Student Support Services office for consultation regarding documentation of your disability and eligibility for accommodations under the ADA/504. In order to receive accommodations, eligible students must provide each instructor with a Faculty Accommodation Form from Disability Services. Students must return the completed and signed form to the Disability Services office on the 3rd floor of the Connell Student Center. Students with a documented disability who do not wish to use accommodations are strongly encouraged to register with Disability Services and complete a Faculty Accommodation Form each semester. For further information please contact Disability Services at 301-2778 or visit the website at http://www.mercer.edu/stu_support/swd.htm."

Electronic Submission of Materials: "Students bear sole responsibility for ensuring that papers or assignments submitted electronically to a professor are received in a timely manner and in the electronic format(s) specified by the professor. Students are therefore obliged to have their e-mail client issue a receipt verifying that the document has been received. Students are also strongly advised to retain a copy of the dated submission on a separate disk. Faculty members are encouraged, but not required, to acknowledge receipt of the assignment."

Cell Phones and Pagers: "Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be turned off, or placed on vibrate, before entering any classroom, lab, or formal academic or performance event."

Tips for Succeeding in Chemistry 111

There is unquestionably a lot of material to be covered in Chemistry 111. For that reason it is imperative to keep up with the class. The last thing you want to worry about is covering two chapters of new material the night before the test. You are expected to keep up with the class reading and problems. The unannounced quizzes are an added incentive for you to do this.

The class schedule lists problems you should attempt. These problems are representative of some of the problems you will see on the exams. To become proficient you will need practice. In short, work as many problems as you can before the test. The student solutions manual provides solutions to the odd numbered problems. In addition, solutions to the even numbered problems listed in the class schedule will be posted on the WWW (<http://theochem.mercer.edu/chm111>), or worked in class. Students who need solutions to additional even-numbered problems should contact Dr. Pounds.

For more help in the course you should utilize the SI sessions for your class as well as the University's free tutoring service. Both of these resources are here for you to use and, although they can not guarantee a higher grade in the course, they will most likely increase your understanding of chemistry and thereby positively affect your performance in the class.

Tentative Class Schedule¹

Week Starting	Chapter Sections	Lecture and Problem Solving Topics	Problems ²
August 23 rd	1.1 – 1.6	Measurement Significant Figures Unit Conversions	(Chap 1) 23–72 (odd),
August 30 th	2.1 – 2.9	Atoms, Molecules, and Ions Chemical Nomenclature	(Chap 2) 21–77 (odd)
September 6 th	3.1 – 3.10	LABOR DAY 9/7/09 Stoichiometry of Compounds Stoichiometry of Reactions	(Chap 3) 17-107 (odd)
September 13 th	3.11, 4-1 – 4.3	Stoichiometry in Solutions EXAM #1, 9/16/09 Aqueous Solution Chemistry Acids & Bases	(Chap 4) 25–91 (odd)
September 20 th	4-4 – 4-6	Oxidation/Reduction Balancing REDOX Equations	
September 27 th	5.1 – 5.8	Kinetic Theory of Gases Gas Laws	(Chap 5) 21–87 (odd)
October 4 th	5.9 – 5.12, 6.1 – 6.3	Calculations with Gases Real Gases EXAM #2, 10/7/09 Energy and Thermodynamics	(Chap 6) 19–81 (odd)
October 11 th	6.4 – 6.8	Enthalpy and Calorimetry Hess's Law FALL BREAK 10/15-10/16	
October 18 th		Enthalpies of Formation Enthalpies of Reaction EXAM #3, 3/21/09	
October 25 th	7.1 – 7.7	Atomic Structure Photons Withdrawal Deadline, 10/29/09	(Chap 7) 23–67 (odd)
November 1 st	8.1 – 8.5	Bohr's Theory Quantum Theory Multielectron Atoms	(Chap 8) 21–73 (odd)
November 8 th	8.6 – 8.9	Quantum Theory Multielectron Atoms	
November 15 th		Periodic Properties Descriptive Chemistry	
November 22 nd		EXAM #4, 11/23/09 THANKSGIVING 11/25-11/27	
November 29 th	9.1 – 9.12 10.1 – 10.3	Chemical Bonds Lewis Structures Formal Charge VSEPR Theory Polarity	(Chap 9) 21–83 (odd) (Chap 10) 21–67 (odd)
December 6 th	10.4 – 10.9	LCAO-MO Theory EXAM #5, 12/9/09 REVIEW	
December 13 th		FINAL EXAM, 12/19/09, 9 a.m. (Saturday)	

¹ I reserve the right to modify this schedule as situations warrant.

² These represent the minimum number of problems you should attempt. Other problems will be provided to the class via e-mail as warranted.

The Laboratory

Students are **expected** to prepare for lab by downloading laboratory instructions and report forms from the online repository (<http://chemistry.mercer.edu/genchem/chm111.htm>). Students will be expected to follow *all* of the safety procedures outlined in the laboratory instructions and during the pre-lab meeting. STUDENTS WHO ARE IMPROPERLY CLOTHED OR WHO DO NOT HAVE THEIR SAFETY GLASSES WILL NOT BE PERMITTED TO ENTER THE LAB. Failure to follow any of the lab safety procedures will result in a 10% point reduction for the laboratory experiment being performed.

Lab grades will consist of 10 prelabs @ 5pts and 10 lab reports at 20 pts for a total of 250 pts.

All data from the lab should be recorded in the lab notebook, not the report sheets, using a black or blue ball-point pen. Each page needs to show your name, date, and experiment title. Do not remove the original pages from the notebook. The yellow copies from the notebook will occasionally be collected at the end of lab. If the pages are not collected at the end of lab then they should be turned in with the lab report.

Pre-lab exercises will be administered via *BlackBoard* and should be completed before *the beginning* of lecture on the day specified in the laboratory schedule. Once a prelab expires on *BlackBoard*, it will no longer be available for students. It is impossible to turn pre-labs in late. Lab reports should be turned in *at the beginning* of the subsequent laboratory period. Late lab reports will be penalized 20%/day. The final lab report should be turned in at the end of the last lab period. It is critical that submitted lab reports be neat and organized. Students may collaborate on the lab reports, but each student is expected to individually fill out and turn in their data sheets and questions.

Once you check into lab you are personally responsible for all contents of your lab drawer. You will not be permitted to take the final exam for the course until you check out of lab and pay any lab fees.

It is imperative that you attend lab on the date scheduled. Unless you have a excused absence for a University sanctioned event, you will not be permitted to make up the missed lab. Absences due to medical illness or mechanical failures are considered excused. If you are going to miss lab for any reason except a mechanical failure, you must notify Dr. Pounds prior to the absence or the absence will be considered unexcused. Unexcused lab absences will result in a zero grade for the lab and more than one unexcused absence will result in a failing grade for the course. In the event that a student is granted an excused absence, the average of their other lab grades will be used to compute the missing grade.

Students who have a excused absence for a University sanctioned event still must notify Dr. Pounds if they are going to miss lab. Dr. Pounds and the student will arrange, with another General Chemistry Professor and the Chemistry Stockroom Coordinator, a time for the student to make up the laboratory. This must be done during the week the laboratory is initially scheduled. Once a new week of experiments has started it will be impossible to make up the laboratory. If it is impossible to make up the lab in another section, then the average of the student's other lab grades will be used to compute the missed lab. Missing more than three labs, excused or unexcused, will result in a failing grade in the course.

Laboratory Schedule

Lab Day	Experiment
September 3 st	Check In Pennies / Unknown Metal
September 10 th	NO LAB
September 17 th	Qualitative Analysis: Household Chemicals
September 24 th	Alum Synthesis
October 1 st	Standardization of 0.13 M NaOH
October 8 th	Analysis of KHP
October 15 th	NO LAB – FALL BREAK
October 22 nd	Molar Mass
October 29 th	Thermochemistry
November 5 th	Atomic Spectra
November 12 th	Spectroscopic Determination of Ni ²⁺
November 19 th	NO LAB
November 26 th	NO LAB
December 3 rd	Molecular Models, Check Out