



### III. Required Materials

- Textbook: "General Chemistry: Principles & Modern Applications", 10<sup>th</sup> Ed., Petrucci, Herring, Madura and Bissonnette, 2011. (ISBN 978-0-13-206452-1)
- Laboratory Manual: The laboratory manual for Chemical Principles, as well as other lab information is online at [chemlab.truman.edu](http://chemlab.truman.edu).
- Laboratory Notebook: A permanently bound laboratory notebook capable of creating duplicate pages is *required*. You must have this notebook by the first lab.
- Safety Glasses: All students are required to have departmental approved *safety glasses or goggles* for use in the laboratory. These goggles must meet ANSI Z87 or Z87.1 standards. Strict compliance of this rule will be maintained at all times. These will be necessary for the **first scheduled laboratory period** and all labs thereafter.
- Laboratory Attire: Proper lab attire will be required at **ALL** lab sessions. In addition to safety glasses, you must always attend lab wearing long pants, close-toed shoes, and a shirt that covers the upper body (at least equivalent to a crew neck tee-shirt). Inappropriately attired people will not be allowed in lab.
- Calculator: You must have a *hand-held scientific calculator* capable of scientific notation for use on homework problems, quizzes, and exams. It will be assumed that you have a calculator for all quizzes and exams. The instructor will not loan calculators.
- Attendance etc.: It is expected that everyone will attend class and participate. Although attendance is not mandatory, roll will regularly be taken. Attendance records are a factor in determining borderline grades at the end of the semester.

### IV. Lecture

- Coverage: The lecture portion of the course will explore and elaborate on topics presented in the text. It does not make sense for me to repeat all of the material in the text. I will introduce topics and elaborate on points that are particularly essential or challenging. I expect you to read chapters that we cover *in their entirety* and to ask questions about what you read.
- Exams: Four in-class exams worth a total of 400 points will be given. Tentative dates are: **September 21 (W), October 12 (W), November 9 (W), December 7 (W)**  
A comprehensive final exam will be given **Tuesday, December 13** from 9:30 AM - 11:20 AM. The final exam will be worth 200 points.
- Homework & Quizzes: Regular homework assignments will be given to be worked individually or in groups, but may not be graded. While working in groups to solve problems is very helpful, the result is usually a "group" assignment that does not adequately reflect whether you learned the material. Instead of graded homework, we will have weekly quizzes of 15-20 minutes. These quizzes will be given the last 20 minutes of class each Friday (except for weeks we have an exam). Many questions for the quizzes will be taken **directly**, or with slight alteration, from the assigned homework. Your reward for doing your homework conscientiously should be good performance on these quizzes.
- Online Homework: We will utilize Sapling Learning's online homework system in this course. Instructions for setting up an account are at: <http://bit.ly/saplinginstructions>. There is a \$40 fee for access to the system for the semester, but the instant feedback and guidance that the system provides as you solve problems makes it a very good investment! Sapling Learning offers a grace period on payment; for most courses, this is 14 days from the first day of the term. During sign up or throughout the term, if you have any technical problems or grading issues, please direct them to send an email to [support@saplinglearning.com](mailto:support@saplinglearning.com) explaining the issue.

#### IV. Laboratory

##### Laboratory Philosophy:

Experimentation is at the heart of chemistry. The vast majority of the new knowledge in chemistry comes from careful examination and interpretation of experimental results. In order for you to have confidence in your results, it is important that the experiments be executed carefully and properly. The Chemical Principles laboratory is designed to teach you lab skills, reinforce concepts from lecture, and show you how to think about scientific problem solving. The importance of lab is reflected in the fact that it counts for over 20% of your final grade.

##### Lab Notebooks:

The purpose of a research lab notebook is to enable you or any other worker to understand your experiment and duplicate your work. Although we are not operating in a research environment, my goal is to teach you the habits that will make you a better scientist in the future. You are required to maintain a permanently bound and numbered lab notebook, capable of making duplicate pages that will be handed in for grading. Before coming to lab you must familiarize yourself with the theory, techniques, and safety precautions for the experiment. I expect all students to come prepared for lab. Poor preparation will not only lead to poor results, but will also result in loss of points for prelab preparation.

You must have all the information necessary to do the lab written in your notebook **before lab**. This includes a statement of purpose of the experiment, outline of the procedure that will be followed, and blank data tables if necessary. Failure to come prepared will result in a loss of points. All results and observations must be written **directly** in the notebook, students who make temporary entries on random pieces of paper or paper towels will find them vanishing (the papers, not the students!).

Other guidelines/rules:

- **Record everything directly in your lab notebook, not on other paper!**
- **Always write in your notebook in PEN, not pencil!**
- Mistakes in the lab notebook should be crossed out with a single line. Whiteout, etc. is not acceptable.
- All labs should be completed in chronological order. The write-up for one experiment should be completed before the next write-up begins.
- Write your name and a running title for the experiment on the top of each page. **Sign and date the bottom of each page as it is completed.**
- Your notebook must have an up-to-date table of contents on the first page.
- Computer-generated tables and graphs are encouraged where appropriate. Such material must be inserted permanently into the notebook with a copy on both the original and carbon copy page and must be accompanied by filename and location of the computer file.
- Affix printouts to notebook pages with glue or tape (not staples). Do NOT staple printouts to the notebook pages! Adjust print settings and/or trim printouts so that they fit within the constraints of a single page and allow the pre-printed page number to show.
- **Paper must not hang out over the notebook page!**
- If you are working in a group and only one member of the group records data at the time of the experiment, you must indicate in your notebook that the original results were copied from the other person's notebook. Give the page number of the original results.

##### Lab Grading:

Lab performance has a major bearing on your overall course grade. You will be awarded a maximum of 5 points for arriving at lab with an appropriately prepared lab notebook and a maximum of 5 points for successfully completing each experiment and turning in a lab report. Five of these reports will be graded for 25 points each. The Vitamin C lab will be graded as a 50 point "project".

## VI. Grading

Grade point breakdown: Letter grades will be determined based on the percentage derived from the breakdown shown below.

<u>Grade Point Distribution</u>	
<u>Source</u>	<u>Total Points</u>
4 Exams	400 pts. maximum
11 Quizzes	250 pts. maximum (drop lowest)
Final Exam	200 pts. maximum
Homework	100 pts. maximum
Misc. and Group Assignments	100 pts. maximum
10 Experiments	100 pts.
Vitamin C Lab	50 pts.
5 Lab Reports	125 pts.
<b>Total points</b>	<b>1325 pts. maximum</b>

Grading Scale: Awarding of final class grades will be based on a 90-80-70-60 scale. Percentages will be based on the total possible points for the semester.

*I reserve the right to lower the grading scale, but it will never be raised.*

Late Hand-ins: **No late work will be accepted.** All assignments will be given a specific deadline, anything turned in after the deadline without prior approval will earn a score of zero.

Make-ups: No make-up exams, quizzes, or labs will be given without prior approval. If you cannot attend a scheduled exam for a **valid, instructor-approved reason**, notify Dr. Lamp IN ADVANCE and an arrangement will be made. No credit will be given for missed labs, exams or quizzes without prior instructor approval. Valid reasons include traveling with a University-sponsored organization, illness, or death in the family. If a sudden, unexpected event occurs that causes your absence, contact the Student Affairs Office and they will contact me. Also, please leave a voice or e-mail message for me and contact me immediately upon your return.

## VII. Other Information

- All assignments in lab and lecture *must be written legibly and in a well-organized fashion*. If an answer or work cannot easily be interpreted, no credit will be given. I used to tell people "If I can read my handwriting, I can read anyone's." I've been frequently proven wrong!
- All mathematical work and assumptions used when solving a problem, whether on homework, quizzes or exams, *must be shown in order to receive credit for the problem*. Please mark your answers clearly.
- Trim edges of spiral notebook paper and **staple multiple sheets** prior to submission.
- Do not procrastinate!!! Your understanding of lecture material, and grades on homework and exams will be adversely affected by this approach. *It is strongly recommended that you work ahead on reading and homework and participate fully in classroom discussions and problem solving sessions*. The instructor reserves the right to not answer "panic" questions on the day of an exam and will certainly be stingy with time other than his office hours on the day prior to an exam.

**VIII. Anticipated Class Calendar: This is only a guide, our schedule may vary.**

	Topic	Chapter
A	Quantitative Data/Problem Solving	1
B	Atomic Structure and Periodic Table	2
	Atoms, Molecules and Compounds	2, 3
C	Atoms and the Mole	2
	Chem. Equations and Stoichiometry	4
	Reactions in Aqueous Solution	4, 5

	Topic	Chapter
D	Gases	6
E	Energy and Chemical Reactions	7
F	Entropy and Free Energy	19
G	Chemical Kinetics	14
H	Chemical Equilibria	15
I	Introductory Bonding Models	10

**August**

	Monday	Tuesday	Wednesday	Thursday	Friday	Lab
Date	22	23	24	25	26	Toledo
Topic			A		B/Quiz	

**September**

	Monday	Tuesday	Wednesday	Thursday	Friday	Lab
Date	29-Aug	30-Aug	31-Aug	1	2	Lab Intro
Topic	B		B		B/Quiz	
Date	5	6	7	8	9	No Lab
Topic	Labor Day		B/C		C/Quiz	
Date	12	13	14	15	16	Check-In/ Density
Topic	C		C		C/Quiz	
Date	19	20	21	22	23	Alum I: Synthesis
Topic	D		Exam		D	
Date	26	27	28	29	30	Alum II: Gravimetry
Topic	D		D		E/Quiz	

**October**

	Monday	Tuesday	Wednesday	Thursday	Friday	Lab
Date	3	4	5	6	7	Alum III: Colorimetry
Topic	E		E		E/Quiz	
Date	10	11	12	13	14	No Lab
Topic	E		Exam		Break	
Date	17	18	19	20	21	Wintergreen Hydrolysis
Topic	F		F		F/Quiz	
Date	24	25	26	27	28	Molar Mass Titration
Topic	F		F		G/Quiz	

**November**

	Monday	Tuesday	Wednesday	Thursday	Friday	Lab
Date	31-Oct	1	2	3	4	Vitamin C
Topic	G		G		G/Quiz	
Date	7	8	9	10	11	Vitamin C
Topic	G		Exam		H	
Date	14	15	16	17	18	Enthalpy of Hydration
Topic	H		H		H/Quiz	
Date	21	22	23	24	25	No Lab
Topic			Thanksgiving	Break		
Date	28	29	30	1-Dec	2-Dec	Kinetics
Topic	H		I		I/Quiz	

**December**

	Monday	Tuesday	Wednesday	Thursday	Friday	Lab
Date	5	6	7	8	9	Det'n of $K_{eq}$ / Check-Out
Topic	I		Exam		Review	
Date	12	13	14	15	16	
Topic	Finals	Final Exam	Reading Day			