

**Syllabus for CHM 1315-007,8**  
**General Chemistry I Laboratory**  
**Fall Semester, 2011**

**Course Description:** Experimental work to illustrate fundamental chemical principles and related phenomena discussed in CHM 1310 Gen Chem I, including: atomic and electronic structure, bonding, chemical composition, chemical reactions, gases, stoichiometry, and thermochemistry. The course also introduces methods and principles of performing chemistry laboratory work. The course is assigned 1 hour of credit, and has incorporated into a \$30 course fee for supplies and glassware – this does not cover the lab manual or goggles.

*There is a companion lecture course (CHM 1310) that is meant to accompany this lab, and concurrent enrollment is required. Note that if you **drop the lecture**, you must drop the lab as well, no exceptions. Also remember the grades for these courses are separate – you could pass 1315 (the lab) but fail 1310 (the lecture), or vice versa – you need to pass BOTH in order to take CHM 1410 and CHM 1415.*

*Prerequisite: 1 year high school chemistry or CHM1040 with a “C” or better; ACT Math score of 21 or better or MAT1271. Please note that I will not be using class time to teach how to do algebra.*

**Course Goals:** (1) Develop experimental chemistry skills, such as dealing with significant figures, uncertainty/measurements, plotting data, etc  
(2) Illustrate the concepts discussed in the companion lecture course  
(3) Generate interest and excitement in chemistry

**Meeting times:** Thursdays at 8:00 **SHARP** -10:50 pm in PSB Room 4157 and 4120/4121

**Instructor:** Dr. Ed Treadwell                      Office: PSB Room 4450  
Phone: 581-6229                                      E-mail: [emtreadwell@eiu.edu](mailto:emtreadwell@eiu.edu)

**Office Hours:** Wednesday 11:00 am – noon; Wednesday 1:00 – 2:00 p.m.  
Other hours as available or by appointment. I will not generally be available Thursday mornings before the lab begins.

**Materials:** “Fall 2011 General Chemistry I Laboratory Manual”  
(\$8, available at CopyX, to the west of Jimmy Jones on Lincoln Avenue)  
Department-approved laboratory goggles  
**A scientific calculator (one that can express scientific notations) is required.**  
Note that if it a graphing calculator, I reserve the right to clear it’s memory/cards before a quiz.

**Online information:** The Department maintains a page for this course, at the link below:  
[http://www.eiu.edu/eiuchem/Undergraduate\\_General\\_Chemistry.php](http://www.eiu.edu/eiuchem/Undergraduate_General_Chemistry.php)  
You will find on there pictures of acceptable/unacceptable goggles, an equipment guide, links to help with certain experiments, and **tutorials on sig figs, math operations, stoichiometry, etc** (with problems and answers). Very useful.  
I will also have a WebCT page for this course, where I will post announcements and additional information to help you understand the labs. Please make it a point of checking this regularly, as I will be assuming you all do.

### Course Policies:

- (1) You must attend pre-lab lectures in order to perform the experiment. These lectures are to stress safety concerns, give any changes to the procedure, and to highlight/explain the basics of the experiment and experiment reports. If I catch you coming in to the lab only, after missing lecture, I will not hesitate to tell you to leave and give you a 0 for that lab.
- (2) You MUST **be on time** – the lab starts at exactly 8:00 A.M., not 8:02 or 8:05 or 8:08 A.M. I will close the door once class begins, and refuse to let you in, if you are late, for the safety of your classmates. And then see item (1) above.
- (3) During prelab lectures you should be respectful, AWAKE, and attentive, and that your **cell phone is OFF**. I will not hesitate to ask you to leave if you are being disruptive, and will report severe or repeated disruptions to the Office of Student Standards.
- (4) You must ALWAYS be aware of the Laboratory Safety and Laboratory Etiquette sections in the General Chemistry Laboratory Manual. **Safety is a PARAMOUNT concern** in the lab, and I will not hesitate to correct/expel you from the lab for flagrant or repeated failure to obey the rules. **GOGGLES MUST ALWAYS BE ON IN MY LABS!!!**
- (5) You must be wearing **closed-toes shoes** (shoes that cover your feet) in order to work in the lab. If you show up wearing the wrong shoes, I will send you home to get the proper ones, without giving you any extra time to complete the experiment.
- (6) There is a safety code of conduct pledge in your lab manual, that must be signed and handed in before any lab work can commence.
- (7) You MUST **read the laboratory manual** before the lab starts, in order to better understand the experiment for that week. The more familiar you are with the experiment, the smoother and the quicker the lab will go.
- (8) **Prelab assignments must be completed BEFORE you come to lab**, and will be collected at the start of the lab and counted towards your total grade in the course.
- (9) Absences and Makeup Labs
  - A. Absences for Medical Reasons – If you are absent because you were sick, you may makeup work if you provide an excuse that is *written* and *signed* by a medical official, and you have made a good-conscious effort to let me know **as soon as you are stabilized/able**.
  - B. Absences for Athletic Reasons – If you must be absent because of required travel with an University athletic team, provide me with documentation and contact me **in advance** to make arrangements. After your travel is too late, and I will not allow any make-up work.
  - C. Other Absences – Absences due to emergency reasons only will be judged on a case-by-case basis. Leaving early/returning late around a university holiday is NOT an acceptable excuse, and there will be no opportunity to make up missing work in these cases.

Note that in most cases, the make-up last must be done in the following week, to make it easier on the stockroom personnel.
- (10) If you have a documented disability and need to discuss academic accommodations, please contact Dr. Treadwell as soon as possible.
- (11) All aspects of the student conduct code are expected to be followed, and ANY instance or suspected instance of CHEATING, PLAGARISM, or allowing someone to CHEAT will be immediately reported to the Office of Student Standards with the instructor's recommendation of an "F" for the course. (Please make yourself familiar with this policy <http://www.eiu.edu/~judicial/studentconductcode.php>, if you are not already)

## Possible Points:

<i>Source</i>		<i>Points</i>	<i>Percent of Total</i>
Pre-Lab Assignments	(12 for 2.5pts each)	30	(6%)
Data/Report Sheets	(12 for 30pts each)	360	(67%)
Quizzes for Experiments	(8 for 15pts each)	120	(22%)
Comprehensive Quiz	(1 for 30 pts)	30	(6%)
Total Points		540	

## Grades:

Grades will be assigned based on the scale below:

A	90-100% of total points
B	78-90%
C	66-78%
D	54-66%
F	<54%

Note that you must pass CHM1315 in order to take CHM1410 and CHM1415.

## Pre-lab assignments

These are short exercises (1-2 pages) on yellow pages in your manual that contain EXACTLY the type of calculations you will need to do in that day's lab, and might appear on the quiz as well. It is imperative that you do these, in order to be more familiar with the experiment – it will help you understand things better as well as get you out of lab faster. You will find the labs much more frustrating, longer, and confusing if you skip the pre-lab assignments, and usually your grade on the data/report sheet and quiz will be lower as well. They are due at the beginning of lab (that is, 8:00 am), and **will not be accepted if turned in even 2 minutes late**. DO NOT COPY SOMEONE ELSE'S Pre-lab – this is cheating and will be reported to the Student Standards Board. You must pay attention to units and significant figures on the pre-labs for full credit.

## Data/Report sheets

These are several pages, in your manual after the experimental directions, on which you will record your results as well as interpret their meaning/value. Data/report sheets are at the end of each day, BEFORE YOU LEAVE THE LAB. Late data/report sheets will not be accepted nor graded. Be sure to write a response for ALL questions/items. These will be graded on the following criteria:

clarity (can I easily find/read the data, is it labeled and not just a number written somewhere?)

correct significant figures and units

completeness (are all the steps/calculations shown?)

consistency (are your conclusions actually supported by your data, rather than what you expected the results to be?)

precision/accuracy (are your results close to the true values? Note this means you want to do the experiments carefully so as not to lose points here)

## Quizzes

These will be given out at the START of class, and will take 5-15 minutes. They will include questions on that day's lab (sample calculations, basic questions on theory or procedure), and **if you've done the pre-lab and read the experiment (including the sections of the textbook directed to) carefully you should be prepared for the quizzes.** Note that I will not be asking nit-picky questions on the procedure, but more the general concept/flow. They will also include questions regarding your understanding of the previous lab.

Quizzes will be given for Experiments 2,3,4,6,8,9,11,12 (so no quiz for Exps 1,5,7, or 10). Remember that quizzes make up 22% of your overall grade, so poor performance on the quizzes can lower your grade by one or two letters. Be ready for the quizzes!!

There is a comprehensive quiz given the last week of the semester that will cover material from the entire semester, and is worth 6% of your overall grade.

## Fall 2011 Schedule

### *General Chemistry I (CHM 1310G) and General Chemistry Laboratory I (CHM 1315G)*

You must be enrolled in both CHM 1310G and CHM 1315G. If you drop, you must drop both courses. You cannot remain in lab if you drop lecture or vice versa.

Lab meets for the first time the **second** week of class. If you miss the first scheduled lab meeting, you must notify your lab instructor concerning your absence prior to the second lab meeting. If you fail to do so, you will **be dropped from the course**.

#### Textbooks

CHM 1310G: *Chemistry: The Central Science*, 12<sup>th</sup> edition, Brown, LeMay, Bursten, Murphy, and Woodward plus *Solutions to Red Exercises*. Obtain these items from TRS.

CHM 1315G: *Chemistry 1315: The Laboratory*. Purchase the lab manual at Copy-X located on the corner of 3<sup>rd</sup> and Lincoln Ave. Cost: \$8. Bring the lab manual to the first scheduled lab meeting.

Dates	CHM 1310G (lecture)	CHM 1315G (lab)
8/22-26	Ch 1: Introduction: Matter and Measurement	No Class
8/29-9/2	Ch 2: Atoms, Molecules, and Ions	Check- In Exp 1: Lab Tools: The Balance...
9/5-9	Ch 3: Stoichiometry: Calculations with Chemical Formulas and Equations	Exp 2: Measurement: Physical Properties
9/12-16	Ch 3: continued	Exp 3: Chemical Equations: Mass Relationships
9/19-23	Ch 4: Reactions in Aqueous Solutions	Exp 4: Solubility and Precipitation
9/26-30	Ch 4: continued	Exp 5: Solution Reactions: Identifying ...
10/3-7	Ch 5: Thermochemistry	Exp 6: Solution Stoichiometry: Acid-Base Titration
10/10-14	Ch 5: continued	Exp 7A: Chemical Equations: Energy... Exp 7B: Preparation of a Copper Carbonate
10/17-21	Ch 6: Electronic Structure of Atoms	Exp 8: Spectrophotometric Analysis
10/24-28	Ch 6: continued Ch 7: Periodic Properties of the Elements	Exp 9A: Composition of a Copper Carbonate Exp 9B: Preparation of a Double Salt
10/31-11/4	Ch 7: continued Ch 8: Basic Concepts of Chemical Bonding	Exp 10: Spectroscope and Line Spectra
11/7-11	Ch 8: continued	Exp 11: Analysis of a Double Salt, Part I
11/14-18	Ch 9: Molecular Geometry and Bonding Theories	Exp 11: Analysis of a Double Salt, Part II
11/21-25	Winter Break	
11/28-12/2	Ch 10: Gases	Exp 12: Properties and Composition of Air
12/5-9	Ch 11: Liquids and Intermolecular Forces	Lab Final and Check-out

**Tutoring:** The chemistry department sponsors a tutoring service staffed by advanced undergraduate chemistry majors and/or graduate students; this service is normally in place by the fourth week of the semester. A tutoring schedule will be announced distributed, and posted then. Tutoring is free and tutors are available on a first-come first-served basis. (Note: This service is contingent upon the availability of suitable tutors.)