

CHEMISTRY 115-A, Fall 2007

Instructor **Dr. William Robinson**, WTHR230A, 49-45453, wrrobin@purdue.edu

Course Supervisor **Dr. Susan C. Nurrenbern**, BRWN 1144, 49-40823, nurrenbe@purdue.edu

Lectures Monday and Friday each week at 3:30 PM in WTHR 200

URLs

WebCT	http://www.purdue.edu/ecourses
OWL On-Line	http://owl.thomsonlearning.com
Academic Success Center	http://www.cla.purdue.edu/asc
PU Gen Chem Help Site	http://www.chem.purdue.edu/ghelp

Things That You Must Do During Week #1

- ▶ Register your CPS pad using the link on your WebCT course homepage (not the eInstruction site) at <http://www.purdue.edu/ecourses>.
- ▶ Register with OWL on-line learning at <http://www.thomsonlearning.com>. Complete the Introduction to OWL exercises.
- ▶ Read all the information in this course packet.

Required Materials

- **Textbook:** *Chemistry & Chemical Reactivity*, Sixth Edition, Kotz, Treichel & Weaver. Thomson/Brooks-Cole Publishing, 2006.
- **Lab Manual:** *Chemistry 115 Laboratory Manual*, Purdue University, Fall 2007 Edition, Hayden-McNeil Publishing, Inc. (The required laboratory notebook is packaged with the lab manual.)
- An **OWL access code** which will be supplied with new texts. These can be purchased at the bookstores or on-line at the OWL website.
- A **CPSrf response pad** for lectures. These are available in the bookstores and are commonly called "clickers".
- A **simple scientific calculator** will be necessary for exams. Alpha-numeric and programmable calculators will not be allowed for exams. Solar powered calculators may not work in Elliott Hall of Music due to low intensity theater lighting.
- **Approved safety goggles** are available at the bookstores, the chemistry storeroom, or outside WTHR 200 during the first two weeks of the semester.
- A **padlock** for your assigned lab drawer. (beginning Week #4)
- A **black, permanent ink Sharpie pen** to mark glassware in lab.

SOURCES OF HELP AND ANSWERS FOR STUDENTS IN CHEMISTRY 115

Professor You can make an appointment with the course professor. E-mail addresses (the best way) and phone numbers are on the cover page of this packet of information.

TA Office Hours, WTHR 116 Each CHM 115 TA will hold a one-hour office hour each week where any CHM 115 student can go to get help with chemistry from any CHM 115 TA at no charge. This is 60-70 hours each week where free help is available from the CHM 115 staff. Your TA is the person who has the closest contact with you in this very large course. The teaching assistants in the Department of Chemistry are not just "a bunch of grad students." They are graduate students, all of whom have been through a training program in teaching and tutoring skills and some of them have several years' experience in teaching. If you are having a problem with some aspect(s) of the course, go first to your TA. He/she wants to help you and is available for consultation both at specific hours and by appointment. However, he/she is not going to "spoon-feed" chemistry to you. **Feel free to go to the office hours with a classmate or small group if you feel uncomfortable going alone.**

Chemistry Resource Room, WTHR 117 The staff in this area can answer many of your chemistry related questions but going to a CHM 115 TA with your chemistry questions is recommended. The Chemistry Resource room is also an area where you can study alone or with others. Various kinds of help for all general chemistry students are available. The resources include:

- ▶ Free help and tutoring from the staff assigned to this area
- ▶ A variety of course materials (lecture notes, previous exams, the course text, and lab manuals)
- ▶ Numerous audiovisual and autotutorial programs on chemistry

A student ID card is required to check out most of the materials in the Chemistry Resource Room.

Times when the Chemistry Resource Room is scheduled to be open will be posted outside WTHR 117.

General Chemistry Office, BRWN 1144, 49-45250 The staff in this office handles all the administrative details associated with the course. Go to this office to change your schedule (weeks 2 and 3), to get signatures on university forms such as Form 23, to report absences and complete absence forms. Staff members are there to help you but they must follow the professors' and university's rules and policies.

Course Supervisor/Coordinator The course supervisor/coordinator, located in the General Chemistry Office (BRWN 1144), will handle policy issues or problems in the course. The course supervisor is also responsible for maintaining student grade records.

CHM 115 WebCT Courses Up-to-date course information will be posted on the CHM 115 WebCT courses. Links to other websites that provide useful information for learning chemistry will be posted on the WebCT courses. You will find links to the:

- ▶ TA Office Hour Schedule
- ▶ Purdue Academic Success Center
- ▶ Purdue General Chemistry Help Site
- ▶ OWL On-Line Learning

ADVICE FROM YOUR PROFESSOR

A University is like a Health and Fitness Center for your Brain

When you pay tuition to an academic institution such as Purdue, it is like paying fees to join a Health and Fitness Center. Purdue is a place to exercise and develop your brain “muscle”; health clubs or fitness centers focus on exercising other muscles of your body. Your membership in a “mental exercise club” such as Purdue gives you the opportunity to take advantage of the resources Purdue makes available to exercise your brain just as joining a health club gives you the opportunity to take advantage of the health club’s equipment and resources. Simply being a member of either “club” does not guarantee success. As with a health club, the benefit you gain from a “mental exercise club” depends on the amount, and more importantly, the quality of effort you exert.

How Do I Learn From Lectures?

You can't learn from lectures if you do not attend them or do not think about the information as it is presented during lectures.

You are responsible for all material covered and announcements made in lectures.

Before Class

- Complete the assigned reading and review the notes from the previous class.
- Download and print the student notes for lecture from the course WebCT page.

During class

- Write the date of the lecture on the student notes at the beginning of class if it is not on the first slide.
- Write information that is discussed in lecture but is not on the notes. The professor will give more information than is on the notes.
- Try to answer every CPS question.
- Write down each step of every problem or example even if you do not understand the step. You can always ask about it later.
- Write a question mark next to things you don't understand so you can return to them after class.
- Use shorthand or abbreviations so that you can write quickly, but understandably.

After Class

- Review your notes while things are still fresh in your mind.
- Check your text in order to understand those items that you did not understand and marked in lecture. If necessary, use office hours with any CHM 115 TA to help you.
- Never miss lecture. Chemistry is cumulative. What is presented tomorrow depends upon your knowledge of what was covered today. If you will miss class, then get a friend to take notes for you.

- It will take you at least three hours out of class for every hour we spend in class in order to study and learn the material. This means about 6 hours of studying. You may spend this time working on your lecture notes, reading the text, studying the required material, doing OWL homework, studying for exams, or other things. You may find yourself spending more than 9 hours per week if your math skills need improvement or if you took a chemistry course a few years ago. But if you are committed to your goals and dreams then dedicate yourself to spending the necessary time to study and do well.
- Copies of lecture notes taken by a graduate instructor will be available in the Chemistry Resource Room (WTHR 117) within a day or two following the lectures. However, photocopies of these notes are not a substitute for attending lectures.
- Audio recordings of the lectures can be downloaded from the Boilercast website.

Finally, your ability to understand what you are currently learning may depend on your already having mastered earlier material. So, study chemistry every day and correct your mistakes as they occur.

When Should I Do Homework?

Your assigned homework is considered to be a minimum requirement for keeping focused and learning the material in each chapter. You should practice solving additional problems from the text similar to those assigned and some of those will be available on OWL.

The following guidelines should be helpful if you want to do well in a technical course such as CHM 115 which will probably involve relearning concepts or learning concepts that you did not have in your high school chemistry course. Learning new material requires constant reinforcement which means you may have to change your study habits.

- Do some work in chemistry every day. Work at least two chemistry problems each day. If you are drawing a blank about the problem after 10-15 minutes, go on to another problem. Seek help from a CHM 115 TA the next day during office hours. After a day or so, solve related problems in the text.
- Even though OWL usually asks for your final answer only, it is important that you write down your complete problem solutions. You can fool yourself into believing you understand if you do not write your steps. You must practice if you are going to be proficient and efficient during exam times!

Lecture, Lab and Exam Schedules for CHM 115-A, Fall 2007

Date	Week	Lecture	Lecture Topics for Fall 2007	Week	Lab	Exams
8/20	1	1	CHM 115. Readings from Miller 4.1, 4.2, 4.3	1	Check in, Safety Procedures, OWL On-Homework, CPS pad registration	
8/24	2	2	Climate change			
8/27	2	3	Concepts: atoms, molecules, formulas, chemical transformations, gas laws	2	Reactions In Aqueous Solution (Ch 1)	
8/31	4	4	Nuclear Chemistry: power plants/energy, $\Delta E = q + w$			
9/3	3		Labor Day: No lectures	3	Analyzing a Solid Using Conservation of Mass (Ch 2)	
9/7	5	5	Nuclear Chemistry: fusion/radioactive waste (kinetics)			
9/10	4	6	Nuclear Chemistry: radio imaging (medical)	4	Sodium Carbonate and the Amount of HCl in Hydrochloric Acid (Ch 3)	
9/14	7	7	Atomic Spectroscopy, Ionization energies, shells, energy level configurations			
9/17	5	8	Periodic Trends--valency: radii, ionization energies, molecular formula trends as a prelude to	5	From Element to Salt (Ch 4)	Exam I Sept 20 (Th) 8:30 PM-9:30PM
9/21	9	9	Ionic vs. covalent trends (ionic vs covalent vs metallic models), Ionic bonds			
9/24	6	10	Covalent bonds, bond energies	6	<i>no lab - compensation for night exams</i>	
9/28	11	11	Lewis structures: energies of bonds, violations of octet rules, formal charges			
10/1	7	12	Shapes of Molecules	7	Molecular Geometry (Ch 9)	
10/5	13	13	Hydrocarbons, functional groups			
10/8	8		October break	8	Does human breathing contribute to global warming? (handout)	
10/12	14	14	IR spectroscopy: fingerprints and bond energies			

Lecture, Lab and Exam Schedules for CHM 115-A, Fall 2007

Date	Week	Lecture	Lecture Topics for Fall 2007	Week	Lab	Exams
10/15	9	15	Polarity, electronegativity, dipole moments, solubility	9	Concentration and Spectroscopy (Ch 6)	Exam II Oct 17 (W) 6:30 PM-7:30 PM
10/19		16	Solubility, colligative properties			
10/22	10	17	Biological molecules (15.6): proteins, carbohydrates, nucleic acids	10	Where's the Iron? (Ch 7)	
10/26		18	<i>continued</i> (protein structure)			
10/29	11	19	Polymers	11	Organic reactions: Aspirin, Cross-linked PVA and Nylon (Ch 10)	
11/2		20	Polymers			
11/5	12	21	Drugs as molecules, molecular recognition, receptor binding	12	Preparation of Luminol (Ch 11)	
11/9		22	<i>continued</i>			
11/12	13	23	Crystal structures, x-ray crystallography	13	Models of the Solid State (Ch 12)	Exam III Nov 14 (W) 8:30 PM-9:30 PM
11/16		24	Ceramics, nanoparticles			
11/19	14	25	Electronic structure of solids	14	Thanksgiving: <i>no lab</i>	
			Thanksgiving vacation			
11/26	15	26	Electronic structure of solids	15	Gold Nanoparticles (Ch13)	
11/30		27	Semiconductors, solar cells, solar energy			
12/3	16	28	Energy considerations of biologically derived fuels: biodiesel, ethanol, hydrogen	16	Check-out	
12/7		29	Review/catch-up			
12/10			Final Exam Week (12/10 through 2/15)			

CHEMISTRY 115 POLICIES AND PROCEDURES, Fall 2007

Each CHM 115 professor is aware that chemistry can be difficult material for some people to learn. However, each professor understands that learning chemistry is not impossible and that a variety of different teaching and learning methods may assist with the learning process. In CHM 115 you will have the opportunity to learn individually, with partners and in groups in lectures, recitations, labs and outside of class study time. Experts report that to adequately learn new material in college, two (2) hours of effective study outside regularly scheduled class time each week per one (1) credit hour is required. CHM 115 is a 4-credit course so this suggests that eight (8) hours per week of effective study outside of regular class time is necessary to learn what the professors want you to learn. The department provides several sources of help for you in this process at no cost. These include the professors, the CHM 115 TAs and the Chemistry Resource Room.

Everyone is aware of the diversity of skills and personal issues within this large course so we are concerned that each individual be treated as fairly as possible in all aspects of the course. Consequently, we have established rules, policies and procedures that apply to all students in CHM 115. **As a student in CHM 115, you are responsible for knowing and following the rules, policies and procedures.**

DETERMINING YOUR COURSE GRADE

No extra credit will be available.

Each of the assigned course activities are worth the number of points listed below. Before course grades are finalized after the final exam, the following scores will be dropped.

- your lowest homework score
- your lowest lab score
- your 20 highest scaled eInstruction scores will be included in your total score at the end of the semester

The total number of points (1000) for CHM 115-A are distributed as follows.

OWL Homework Assignments (scaled).....	140 pts
Lecture eInstruction (scaled to 2pts per lecture).....	40 pts
Labs (best 11 of 12 at 20 pts each).....	220 pts
Exams (3 at 130 pts each)	390 pts
Final Exam (comprehensive)	210 pts

After the Final Exam your course grade will be based on the 99th percentile score of total points as follows.

A: $0.90 \times$ (99th percentile score)

B: $0.80 \times$ (99th percentile score)

C: $0.70 \times$ (99th percentile score)

D: $0.60 \times$ (99th percentile score)

F: $< 0.60 \times$ (99th percentile score) OR if you **miss or fail to complete** three (3) or more of the 12 scheduled lab projects without excused absences.

You will earn an automatic grade of "F" in CHM 115 this semester for either of the following reasons.

- **miss three (3) or more of the 12 scheduled laboratory sessions** (weeks 2 - 15) without excused absences
- **fail to complete three (3) or more of the 12 scheduled lab projects.** Completion of a lab project includes the following equally important components: (a) attendance in the laboratory, (b) participation in the laboratory work as well as the (c) preparation of the lab project report and (d) completion submission of a satisfactory laboratory report. Failure to submit a lab report counts the same as a missed lab.

UNIVERSITY DEADLINES

August 31 5:00 PM : Last day to cancel (drop) a course assignment without it appearing on record.

September 17 5:00 PM : Last day to cancel (drop) a course without a grade.

October 24 5:00 PM : Last day to cancel (drop) a course (with a passing or failing grade).

ACADEMIC INTEGRITY

Your integrity is your greatest asset.

The CHM 115 professors view academic dishonesty as a serious offense, so we hope that cheating never arises as a problem in this course. The Office of the Dean of Students publication, *Academic Integrity: A Guide for Students*, is available at <http://www.purdue.edu/ADOS/publications.htm> and is an excellent summary of expectations for Purdue students.

Consequences of Academic Dishonesty (that is, cheating.)

For any cheating on an exam, the student(s) involved will

- ▶ receive an "F" for the course.
- ▶ be reported to the Dean of Students Office.

For dishonesty issues involving CPS response pads in lectures, for example, using multiple pads to enter answers for a classmate, the student(s) will not receive any of the CPS points allotted in the grading scheme.

For a first offense involving a laboratory, student(s) will

- ▶ receive a grade of zero for that lab.
- ▶ lose any benefit of the doubt for a borderline grade at the end of the semester.
- ▶ be reported to the Dean of Students Office.

For a second offense involving a laboratory, the student(s) will

- ▶ receive a grade of "F" for the course.
- ▶ be reported to the Dean of Students Office.

Examples of Academic Dishonesty (cheating) While the following list of examples of academic dishonesty is not complete, the examples are provided for your information. If you have any questions at all about permissible behavior, save yourself some heartache and ask before acting.

1. Copying or possessing an unauthorized crib or unauthorized information (written or electronic) during an exam.
2. Copying from another student's exam or work; allowing another student to copy your work.
3. Using a classmate's response pad in lecture to enter answers for the absent classmate.
4. Copying lab data or a lab report; giving your data or lab report to someone else to copy. This includes files on computer disks as well as paper copies.
5. Changing data for a lab project to fit the perceived answer (that is, what you think the answer should be).
6. Using someone else's data in a lab project summary as if it were your own.
7. Submitting a lab project summary or other work that you did not do.

ATTENDANCE/ABSENCES

We do NOT give make-up exams or labs. **Absence forms are to be completed in BRWN 1144 for an exam or lab absence due to one of the following reasons.**

The following will be the only acceptable reasons for missing an exam or a lab and consideration of a prorated score for the missed activity.

- ▶ You have a serious, major medical illness that requires immediate, emergency medical attention. Students have the responsibility to provide verifiable documentation of the situation to the course supervisor in BRWN 1144.
- ▶ Death of an immediate family member. Complete an absence form in BRWN 1144 before leaving campus. Return with a memorial card or other verification for the date and location of the funeral or memorial services. Students have the responsibility to provide verifiable documentation of the situation to the course supervisor in BRWN 1144.
- ▶ A direct conflict with another exam, class, or required* university activity. An absence form for this type of conflict must be completed with an attached verification letter at least one week (7 calendar days) before the conflict. Do this in BRWN 1144. We will try to accommodate legitimate conflicts but you will need to take care of the paperwork before the conflict. The excuses and paperwork will not be handled or considered after the conflict has occurred.

* Club activities will not be excused unless the activity is a professional activity directly associated with your major.

If you will miss more than two (2) labs due to NCAA athletics, PMO, band, or religious activities, you must provide documentation to the staff in BRWN 1144 and change your lab section by the end of week 3 of the semester. Otherwise you will receive no credit for lab absences that are associated with these activities although with documentation, these zeros will not count as "failure to complete" labs.

If you miss an exam or lab for some reason that is not on the list above, that is, an unexcused absence, that score will not be prorated.

Reporting Absences Telling your graduate instructor that you have missed or will miss an exam or a lab is not sufficient. Absence forms must be completed in BRWN 1144.

- ▶ **Conflicts You Know About Before an Exam or Lab:** An absence form for this type of conflict must be completed with an attached verification letter at least one week (7 calendar days) before the conflict in BRWN 1144. We will try to accommodate legitimate conflicts as stated in the previous paragraphs but the excuses and paper work will not be handled after the conflict has occurred..
- ▶ **Emergencies:** If you miss an exam or a lab due to a major medical emergency or death in your immediate family, then report your situation immediately to the General Chemistry Office, 49-45252. Go to the General Chemistry Office, BRWN 1144, and complete an absence form with verifying documentation within two weeks after the absence so that arrangements can be made to possibly prorate that lab or exam.

DISABILITY ACCOMMODATIONS

If you require accommodations to access course activities or materials, the accommodations must be described and approved by Adaptive Programs, Room 830, Young Hall, 302 Wood Street. To implement accommodations you must follow the instructions listed as "Responsibilities of the Student" in the letter prepared by Adaptive Programs. Give one copy of the accommodation letter to your professor, *not* your TA. **Take another copy to the CHM 115 course supervisor in BRWN 1144 within the first three (3) weeks of the semester to discuss your accommodations.** If you have accommodations identified and approved during the semester, you are encouraged to initiate a meeting with the **CHM 115 course supervisor** to discuss the accommodations within one (1) week of the date of the letter. Timely notification of the **CHM 115 course supervisor** is critical for timely implementation.

COURSE ACTIVITIES

Readings

Reading assignments will be given for each lecture. These assignments will be announced in lectures and posted on WebCT courses. During each lecture, CPS questions will be given about the reading material assigned the previous lecture.

Lectures

You will be responsible for any announcements or course changes that are made in all lectures. Lecture notes taken by a graduate instructor will be available in the Resource Room, WTHR 117. Audiotapes of lectures will be available at the BoilerCast website [<http://www.itap.purdue.edu/boilercast>].

CPS response pads will be used to get your responses to a variety of questions and problems during lectures. The professors believe this process helps students learn and you will be allowed to use only the pad that belongs to you. CPS participation for the first lecture of the semester will not be considered in the determination of your course grade. You will need to register your CPS pad into the appropriate CHM 115 lecture course via the link on your WebCT course homepage.

The use of cell phones, pagers, ipods or other electronic devices not being used for instruction purposes are distracting for everyone. The use of these types of devices in a classroom, in addition to talking with your neighbor, reading the newspaper, etc. is considered to be inappropriate behavior for group learning environments where others are trying to listen and understand what is going on. Please respect your colleagues and turn off this equipment in lectures as well as in recitations and labs. Wireless devices interfere with the transmission of CPS response signals so you will need to turn off any wireless device during lectures.

Exams

Attendance is required. We do not give make-up exams in CHM 115.

Before Exam I, you will receive an exam seat assignment for the entire semester. It will be posted on the CHM 115: Exam Seating WebCT course. Take your seat assignment, simple scientific calculator with exponential, logarithm and square root functions, and a #2 lead pencil with you to the exam. Cell phones and programmable or alpha-numeric calculators may not be used during an exam. You may not share a calculator with another student.

- ▶ If you are absent for an exam, follow the procedures for reporting absences.
- ▶ Students will not be allowed to leave the examination area during the first 15 minutes of the scheduled exam period. Students may arrive late for the exam in this 15-minute window. After the first 15 minutes, no one will be allowed to enter the examination area.
- ▶ If you arrive late for an exam (within the 15-minute window) you will not receive additional time to complete the exam or scan sheet.

Hour Exams Three 60-minute, multiple choice evening exams will be in the Elliott Hall of Music.

Exam I	September 20, 2007	8:30 PM - 9:30 PM
Exam II	October 17, 2007	6:30 PM - 7:30 PM
Exam III	November 14, 2007	8:30 PM - 9:30 PM
Final Exam	to be announced (during the week of Dec 10-15)	

Wait until you know the date of the final exam before you make travel plans that might conflict with the exam. Early exams will not be given to accommodate your travel plans.

The final exam will be a two-hour exam. University policy on Final Exams states: "*Students scheduled for more than two (final) examinations in one calendar day are entitled to reschedule any examinations in excess of two . . . It is the responsibility of the student to make necessary arrangements before the last week of regularly scheduled classes.*"

On-Line Homework

Each on-line weekly assignment will consist of required questions and optional questions. Required questions will contribute to your homework point total, optional questions will not. However, optional tutorials can be used to help understand how to work problems. Other optional questions can be used as practice and/or review for exams.

Assignments are to be completed on-line from the OWL website at <http://owl.thompsonlearning.com>. You will need an access code, your Purdue User Name, and password to register for OWL. If you purchase a new textbook, the access code is included with the textbook "bundle". Otherwise, access codes can be purchased at the bookstores or on-line at the OWL website. You will have a maximum of two (2) attempts to complete each homework assignment before the listed due date. The higher score of the two attempts will be recorded as your score for that homework. Homework will be scored and recorded on-line so there will be no hand grading or regrading of homework

If you miss the posted homework deadline, you will be able to continue working on the problems but you will not receive points for work done after the deadline.

Recitation

You will be responsible for any information given or problems done in these scheduled weekly sessions. These sessions provide you with the opportunity to ask questions and work with your classmates and graduate instructor in small groups. However, 50 minutes is not sufficient time to answer all the questions that all students may have. If you have difficulties or have questions about certain problems, you should go to the CHM 115 graduate instructors office hours in WTHR 116G/H and ask for help. You can go to these office hours by yourself, with a classmate, or in a small group.

Laboratory

Attendance is required since CHM 115 is a laboratory course. You and a partner or group will complete each lab project including the lab report during the regularly scheduled laboratory time unless otherwise noted in the lab schedule. You will not be able to make-up a missed lab or reschedule an individual lab, but you will be responsible for the material covered in any lab you miss since questions based on the lab projects may appear on exams. You will fail CHM 115 if you fail to complete three (3) or more of the twelve (12) scheduled lab projects without excused absences. If you miss a lab, follow the procedures for reporting absences.

You are expected to arrive on time, properly dressed and prepared for lab work when you arrive. If you arrive at lab more than 10 minutes late or improperly dressed, then you will be considered unprepared to do the lab work and will be required to leave the lab for the day. You will not get a grade for that lab and it will count as a failure to complete lab. If you arrive 1-10 minutes late for lab, answers to prelab questions will be considered late and not accepted for grading.

The graduate instructors must close the laboratories by the end of your scheduled lab period (that is, 10:20 AM, 2:20 PM or 5:40 PM). At that time all equipment must be cleaned and put away, lab drawers locked, and lab reports turned in.

Lab Reports Lab reports will be due before leaving lab the day lab work is completed and the lab is closed, that is, 10:20 AM, 2:20 PM, or 5:40 PM. Graduate instructors do not have authority to change the date or time when work is due. Lab reports must be written in ink on the report sheets that you will get in lab. Grading criteria for lab reports are described below.

Late Lab Reports Fifty percent (50%) of the maximum points, will be deducted from the score of both students for any lab report that is up to 24 hours late. No laboratory report will be accepted and graded beyond 24 hours after the report is due. Both students (or the entire group) will not receive a score for a lab if the report is more than 24 hours late and it will count as a failure to complete lab.

Caution about Working With a Lab Partner You will be working with a partner or group for most of the laboratory projects. Each pair or group will turn in a single lab report unless otherwise stated. While we encourage you to discuss concepts with other members of your class, the lab reports are to be unique efforts by you and your partner or group. You and your partner or group share the responsibility for writing lab reports that honestly reflect your work. It is also your responsibility as a team to ensure that everyone whose name is on the report participated in preparing it.

If a student forfeits the responsibility of preparing a lab report to a partner (or other students in a group) and that student changes or falsifies data or plagiarizes any or all parts of the report, then ALL students share the negative consequences associated with academic dishonesty, that is, cheating.

Grading Questions If you have a question about the score on any of your lab work, first ask your graduate instructor for clarification. If the graduate instructor cannot answer your questions, you may take the graded paper to the course supervisor in BRWN 1144 for possible regrading. You will need to do this within one (1) week (that is, 7 calendar days) after the graded paper has been returned to you. Your work will have to have been typewritten or written in ink for a possible regrade. The course supervisor will regrade the entire paper, not just the part where you think an error has been made.

Grading Criteria for Lab Reports Your reports will be graded primarily on correctness and completeness.

- ▶ The report is complete.
- ▶ The report is organized correctly.
- ▶ The presentation is legible and logical. Headings and subheadings are used to identify or describe the contents of a particular section. Graphs and tables have titles to describe the contents. Sentences are complete.
- ▶ The data analysis and calculations have been done with the data your team collected during the lab period.
- ▶ The data analysis, including units of measurements and significant figures, are correct.
- ▶ Chemical terms and concepts have been used correctly throughout the report.
- ▶ Your conclusions and results are consistent with your data and calculations.

Checking Your Scores Shortly after each of the first three exams and shortly before the final exam, all your scores to date will be available to you at the WebCT course site. (Your graduate instructor will have a paper copy of all the scores as well.) You are expected to check your scores when they are posted. You must report any errors to your graduate instructor or to the course supervisor within two weeks of the time they were posted. All disputed scores must be resolved with your graduate instructor or Dr. Nurrenbern, the course supervisor, before the final exam. There will be no score correction considerations after the final exam.

Saving Graded Papers Save all returned graded papers and your exams until after you have received your course letter grade for CHM 115. If you claim that an incorrect score has been recorded for you, we will need to see your paper(s) before we can consider any change in the score or your course grade.

Changing Sections

A change in section requires the approval of the course supervisor in BRWN 1144. Because of high enrollment and the processes associated with assigned lab drawers as well as WebCT, CPS, and OWL registration and enrollment, we will NOT make a section change for students after week #3 of the semester. If you change sections after you check into a locker drawer, you must check out of your old locker drawer before checking into a drawer in your new section.

Lab Check-out

Dropping the Course If you drop CHM 115 after having checked into a locker drawer, it is your responsibility to check-out of your locker drawer during the next regularly scheduled lab. If you do not check out immediately, then you must go to lab at the regularly scheduled time listed in the lab schedule and check out of your locker drawer.

Scheduled Lab Check-Out Lab check-out will start at the regularly scheduled lab time listed in the lab schedule and continue during the regularly scheduled lab time until the graduate instructor has checked equipment in each lab drawer of those students who are present. If this process takes less than the full three (3) hours, then the graduate instructor will close lab and the deadline for that lab's checkout will be declared. We will not be able to accommodate a check-out process for any student who arrives after the scheduled/designated check-out period.

Failure to Check-Out of Lab For anyone who does not check out of a locker drawer by the scheduled or designated time:

- ▶ his/her padlock will be cut (this may also happen for students who arrive late for lab check-out)
- ▶ he/she will be charged a \$45 fee and
- ▶ he/she forfeits the right to determine the acceptability of all locker drawer equipment.

SAFETY CONSIDERATIONS IN LABS

Safety policies **MUST** be followed in the laboratories. Everyone's safety is a primary concern in laboratory instructional situations and must be taken very seriously by everyone in a lab. We don't establish and enforce rules to harass students, graduate instructors, or staff but we must comply with EPA regulations to create a safe working environment for everyone. Ultimately it is everyone's responsibility to watch out for everyone's safety in a laboratory setting. The rules are based on many years of experience by the CHM 115 professors and staff.

Failure to comply with safety regulations has serious consequences. If you are dismissed from lab for violation of safety regulations or department lab dress code, you will not get a grade for that lab and it will be considered as an unexcused absence and as a failure to complete lab.

SAFETY POLICIES FOR CHEMISTRY LABS AT PURDUE

Safety Goggles Each student must have approved safety goggles (not safety glasses) and wear these approved safety goggles *in the laboratory at all times*, including the day of check-out. You will be dismissed from lab and lose all credit for an experiment or lose your opportunity to check out if you do not wear your goggles as required. Safety goggles may be purchased at the local bookstores, the chemistry storeroom, or outside of WTHR 200 during the first week of the semester.

Appropriate Clothing Chemistry department regulations state that you must wear clothing in the laboratory that protects your skin from neck to your ankles, feet, and toes when you are sitting, standing or reaching. You are expected to arrive at lab properly dressed for lab work. You will be dismissed from lab and lose all credit for an experiment or lose your opportunity to check out if you do not wear acceptable clothing. *Unacceptable* clothing includes, but it not limited to: sleeveless or bare midriff tops, clothes that are ripped or have holes in the fabric that expose your skin, shorts, short skirts, open-toed and/or open-heeled shoes and sandals (with or without socks), ballet-type or house slippers.

Gloves Gloves serve two purposes: they protect your skin from potential contaminants and keep any potential contaminants inside the lab. You

will be required to wear protective gloves for many lab activities. When you leave a lab, take the gloves off and throw them away. Get new gloves when you return to lab.

Contact Lenses Wearing contact lenses in the laboratory is not a wise idea: you are encouraged to wear glasses instead. If you wear contact lenses in the laboratory, you must inform your graduate instructor of this at the beginning of the semester.

Hair If your hair is longer than shoulder length you must tie it behind your head in order to avoid accidental contact with open flames or chemicals that might be on the lab bench. Rubber bands are available in the laboratory.

Food and Beverages You may not eat, drink, or bring food into the laboratory.

Electronics The only electronic equipment allowed in the lab will be calculators and equipment being used for instruction and learning.

Handling and Disposal of Hazardous Materials You will be required to follow the instructions printed in your lab manual or given to you by the graduate instructor or others for appropriate handling and disposal of any hazardous materials.

HOW TO USE OWL

CHM 115, Purdue University, Fall 2007



Logging on for the First Time

1. Open a updated web browser such as Internet Explorer, Mozilla Firebox, or Netscape.
2. Go to <http://owl.thomsonlearning.com>.
3. In the **LogIn or Register Here** field click on **General**
4. Click the link for our textbook (*Chemistry & Chemical Reactivity, 6th Edition: Kotz, Treichel & Weaver*). The link will have a picture of our textbook next to it.
5. Click the link for Purdue (**Purdue University-West Lafayette, Indiana**).
6. Click the arrow button located underneath **Student Registration** for the **Chemistry Department**.
7. Click the arrow button next to the section of **CHM 115, Fall 07, Purdue University: A, M01, M02, S, T03, or T04** that corresponds to your scheduled lecture time.
8. Fill in the required information. Enter your 10-digit Purdue ID number in the space provided. For your "Login" use your Purdue User ID which is the first part of your Purdue e-mail (e.g, if your e-mail is abcdef@purdue.edu, then your Purdue User ID/Name is abcdef. For your "Password", use something that you can remember and write it down. Enter the "Access Code" found in the OWL folder that came with your textbook. If you don't have an "Access Code" (aka, pincode), you can purchase one from a campus bookstore or online from the OWL home page (link above). *If you do not want to enter your phone number, make up something*
9. Click the **CONTINUE** button, confirm all the entered information, and click the **CONTINUE** button again.
10. Carefully read the **Licensing Agreement** page, then click the **I AGREE** button.
11. You should now be able to login to the OWL site following the directions below. The first time you log on you will see a welcome screen and be given the opportunity to change any of your contact information.

Logging On

1. Repeat steps 1 through 5 above, but now click the arrow button located underneath **User Login Page** for the Chemistry Department.
2. You should be on the **OWL Student Login** page for the Purdue chemistry department.
3. Enter your Login and Password.
4. Click on the **LOG IN** button. (You may have to scroll down the page.) You should now be on the **Course Menu** page (or wherever you were when you last logged off).
5. If you see the **Invalid Login** page, read the login information and then **TRY AGAIN**.
6. If you continue to have problems, click on **REPORT IT**, and follow the directions.

Working on Your Assignments

1. On the **Course Menu** page check that you are rostered in the correct OWL course. If it is *incorrect*, click **Add/Switch Class** to the left and follow the directions.
2. Click on the link for your course.

3. If there are any **Course Notes**, read them and then click the **Current Assignments** link at the top to see a list of all assignments you can complete. Alternatively, you can click the **Assignment Folders** link to see your assignments organized into folders.
4. Click on the link of the name of the assignment on which you want to work. It is important to do the tutorial assignments (Chapter 0) first to learn to how to enter answers (including special formatting) correctly and to test if your computer has the right software (Flash and Shockwave).
5. Click on the link for the unit on which you want to work.
6. If there is content material to read, follow the directions given.
7. Press the **Next** button at the left to go on.
8. When you get to a question, type in your answer(s), and then click the **CHECK ANSWER** button.
9. Usually, your score, the correct answer(s), and feedback will be shown. (You may have to scroll down the page.)
10. If you *did not* get the problem right, you may click the **Redo Question** button to the left (*if available*) to try the problem again. Otherwise you can try again during another attempt of the unit.
11. When you are ready to move on to another question, either: A) choose a question number link from the status bar at the top of the page, or B) click the **Previous** or **Next** buttons to the left.
12. Click the **Unit Menu** button to the left to return to the complete unit list.
13. When you are done working, click the **Assignments** button and check your current grade. You may repeat some questions to improve your grade up until the due date. Your highest grade will then be recorded. For some question sets you must complete the entire tutorial or example in order to receive credit.
14. Click the **Logout** button on the left side of the page to exit the OWL system. Be sure to always log out when you are finished!

Miscellaneous

1. Click the **Course Notes** button to see any instructor announcements.
2. Click the **Past Due Assignments** to repeat any assignments that are already due for additional practice (note that your grade for that assignment will no longer change).
3. Click the **User Info** button to change your email, phone information and password.
4. Click the **Appendix** button to view helpful information.
5. Click the **Units** button to see the acceptable units and abbreviations for the system.
6. Click the **Help** button for the User's Manual including the online tutorial (Browsing for Beginners).
7. Click the **Send Message** button during an assignment to report a problem or ask your professor a question.

**If you have any problems, please contact your professor or the OWL Administrator:
Dr. Nurrenbern, BRWN 1144, nurrenbe@purdue.edu**

LEARNING OBJECTIVES AND READINGS FOR CHEM 115 FALL 07

During **Week 1** you will need to:

1. **Register your CPS pad in the correct CHM 115 course** using the link on course WebCT homepage (<http://www.purdue.edu/ecourses>). Follow the directions and be careful when entering information because both WebCT and CPS are case sensitive with information such as logins, e-mails and registration numbers.

If your WebCT course does not appear after you login, contact Dr. Nurrenbern in BRWN 1144 to straighten out your registration as soon as possible. Contact Dr. Nurrenbern via e-mail at nurrenbe@purdue.edu with information about the course in which you are currently registered and if you made any schedule changes identify the CHM 115 course you were previously enrolled -- usually it is sufficient to indicate what time you are/were schedule for CHM 115 lectures. If you change lecture sections your name may not appear in the new WebCT course for several days if you wait for the WebCT automatic update process to be completed.

Use your Purdue e-mail account to contact Dr. Nurrenbern and in your e-mail subject line make sure you include CHM 115. Otherwise your e-mail may get overlooked.

2. **Register with OWL on-line learning** at <http://owl.thomsonlearning.com> . You will need the Access Code that was included with your textbook if you purchased a new textbook. Otherwise you can purchase an access code at one of the bookstores or from the link on the OWL homepage (<http://owl.thomsonlearning.com>). Again, follow the instructions carefully.
3. **Complete the Introduction to OWL** exercises with a due date of 8/27/2007, 6:00 PM.
4. **Read all the information in the course packet** that you received at the first lecture very carefully since this contains information about how we will handle a variety of situations during the semester. **Be particularly familiar with the safety, absence, and academic dishonesty policies for CHM 115.** You will need to keep this document as a reference for the entire semester.

Weeks 1 and 2 Review Topics

You will be expected to review some basic material that you covered in your high school chemistry class(es) at the same time that you learn new chemical concepts related to Climate Change . Assignments are set up in OWL for you to accomplish this review so the topics will not be covered in lectures. CHM 115 TAs will be available during office hours to help with your review should you need some personal assistance.

The following sections in your textbook will be helpful for this review:

section 1.6, pp. 25-32

section 2.3-2.5, pp. 69-76

section 3.5, pp. 116-119

section 1.8, pp. 38-42

section 3.3, pp. 103-107

section 12.3, pp. 557-561

By the end of week 3, you need to have reviewed the following concepts and have mastered the following skills that you will use during the entire semester and in other chemistry courses.

Chemistry involves a great deal of mathematical description of properties so, for the entire semester, you will need to

- Use significant figures rules and rounding strategies in all computation correctly to reflect uncertainty of measurements in science.
- Know the basic metric units of length, volume, mass, and temperature and their metric prefixes and use conversion factors to convert among the various units.

Chemistry involves understanding and explaining the properties of matter at the molecular level so, for the entire semester, you will need to be able to

- Predict the monatomic ion formed from a main group element and write the formula of the ion.
- Understand the information available in a chemical formula.
- Understand the relation between molecular or formula mass and molar mass.
- Calculate the molecular mass of a compound.
- Calculate the molar mass (units: g/mol) of any substance.
- Convert between amount of substance (unit: moles), mass (unit: grams) and number of chemical entities (units: molecules, atoms, ions) using conversion factors.
- Convert a chemical statement describing a chemical change into a balanced chemical equation.
- Use a balanced chemical equation for the quantitative study and description of chemical reactions (commonly called stoichiometry)
- Describe the basic characteristics of the various states of matter.
- Define the ideal gas law and its variables.

Climate Change topics

Reading: Textbook Interchapter: The Chemistry of Fuels and Energy Sources, pp. 283-293;

- Understand the nature of potential and kinetic energy and their interconversion.
- Define and differentiate between renewable and nonrenewable fuels.
- Comprehend that one of the fundamental ideas in chemistry is the interaction between energy and matter.
- Define and differentiate between *hypothesis*, *theory* and *law* as scientists define and use these terms.
- Describe the basic structure of atoms.
- Identify the principle sources of energy used in the USA and how they compare to sources of energy used in less developed countries.
- Describe, in general, how the climate has varied over the past 160,000 years.
- Describe the evidence that indicates the climate is growing warmer.
- Describe the factors that are responsible for the Earth's energy balance.
- Describe the change in CO₂ concentrations in the atmosphere over the past 350 years.
- Identify the greenhouse gases and their sources and describe their importance as components of the atmosphere.