

CH 204 – Introduction to Chemical Practice

Unique 52375 – 52415 & 52495 – 52540

Faculty Instructor: Dr. Brian Anderson

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Office hours: W 11.00 – 1.00 PM @ WEL 5.220A, or by appointment

Teaching Assistants: TBA in class or see course website for details

TA office hours MTTh 11.00 – 12.00 PM @ cubical C (1st floor of WEL building)

 TW 4.00 – 5.00 PM @ cubical C (1st floor of WEL building)

Storeroom: Ethan Greene

Office: WEL 4.134 **Phone:** (512) 471-4740

Prerequisite: CH 302 credit or registration

Lower Division Office: WEL 2.212 **Phone:** (512) 471-1567, (512) 471-4983

Address all questions regarding registration, adds, drops, etc. to this office.

The last date to drop this course without possible academic penalty is **September 28, 2005**.

The last day to drop this course for academic reasons is **October 26, 2005**.

Required course materials and supplies

1. Leytner, S. *General Chemistry Lab Manual*; McGraw-Hill Higher Education, **Fall 2005 edition** (available through the University Co-op).
2. A bound laboratory notebook with duplicate numbered pages (sold by the University Co-op or Student Affiliates of the American Chemical Society at the beginning of each semester).
3. Combination lock.
4. Calculator.

Recommended course materials and supplies

Whitten, K. W.; Davis, R. E.; Peck, M. L. *General Chemistry*, 7th ed.; Brooks/Cole, **2004**. (An earlier edition of Whitten and Davis or any other General Chemistry textbook will work as well.)

Lectures

The lecture portion of this course will provide the theoretical background for the laboratory part of the class and help you make that important connection between theory and practice. In addition, lectures will provide helpful hints and details on how to perform the experiments and carry out the calculations. You are strongly encouraged to take notes during the lectures since some of the material covered is not contained within the textbook or the laboratory manual.

Quizzes

Quizzes will be held during the lecture periods almost every week throughout the semester. Quizzes will be limited to 3 – 4 questions and you will have about 10 minutes to complete them. You will only be quizzed on the material of the experiment performed in the laboratory in the previous week. Any theoretical background discussed in the previous lecture and introduction to the experiment in the manual, pre-lab and post-lab type problems, discussion questions and experimental calculations are fair game for quiz material. The lowest quiz grade will be dropped and the rest will count towards 30% of your grade. No make-up quizzes will be offered. If you miss a quiz for any reason, that will be the one you drop.

Laboratory

The laboratory is the most significant component of this course. Most of the experiments will be performed individually; a few will be performed in the groups of two. Do not hesitate to consult with your TA whenever you have questions or are not sure on how to perform certain tasks. Remember, you WILL NOT be penalized for asking questions.

For every experiment that you perform, the following assignments will have to be turned in to your TA for grading:

1. **Pre-lab** – due on the day the experiment is performed during the first 5 minutes of the laboratory period. Every Pre-lab is worth 5 points. A late penalty of 0.5 point (10%) grade reduction per day (excluding weekends and official holidays) will be assessed for the pre-labs turned in later than the indicated deadline.
2. **Report** (including Discussion Questions) – due during the first 5 minutes of the next scheduled laboratory period. Every Report is worth 40 points. A late penalty of 4 points (10%) grade reduction per day (excluding weekends and official holidays) will be assessed for the reports turned in later than the indicated deadline.
3. **Post-lab** – due during the first 5 minutes of the next scheduled laboratory period. Every Post-lab is worth 10 points. A late penalty of a 1 point (10%) grade reduction per day (excluding weekends and official holidays) will be assessed for the post-labs turned in later than the indicated deadline.
4. **Unknown summary sheet** (if applicable) – due during the first 5 minutes of the next scheduled laboratory period. Unknown summary sheets must be submitted along with the corresponding reports. Every Unknown summary sheet is worth 20 points. The same late penalty of a 10% grade reduction per day (excluding weekends and official holidays) will be assessed for late reports and late unknown summary sheets.

It is important that you prepare in advance:

- Read and understand the experimental procedure before coming to class. Relevant pages from your CH301/302 textbook¹ are listed at the end of every experiment for additional reading.
- Complete the **Pre-lab** assignments listed in the manual at the end of each experiment before coming to class. Write down the answers in your laboratory notebook. Write down the title “Pre-lab Problems for Experiment #__” at the top of each page used for pre-lab answers for easier identification.

¹ Whitten, K. W.; Davis, R. E.; Peck, M. L. *General Chemistry*, 7th ed.; Brooks/Cole, 2004.

- Complete the **Preliminary Experimental Write-up** before coming to class. It should include:
 - Your name, unique #, your TA's name, and a date
 - Title of the experiment
 - Objective of the experiment (formulated in your own words!)
 - Equations for applicable chemical reactions
 - Tables ready for data collection (example data tables are provided in the manual).

You DO NOT have to copy the whole experimental procedure from the manual into your notebook. Note, that the Preliminary Experimental Write-up will eventually turn into the report after you collect and analyze the data and finish the Discussion Questions section.

- When working in the lab, use data tables, prepared in advance as part of the Preliminary Experimental Write-up, to record your data. It is important that you enter all of your experimental observations directly into your notebook. At the end of the laboratory period, have your TA **sign your data** collected during the lab session in your laboratory notebook. Stop working on your experiments 15 minutes prior to the scheduled class finish time. Use these 15 minutes to clean up your working space.
- Laboratory **Report** is a CONTINUATION of the Preliminary Experimental Write-up. It must include:
 - Your Preliminary Experimental Write-up
 - Data organized into tables; experimental observations
 - Sample calculation(s)
 - Graphs if applicable
 - Answers to Discussion Questions.

Make sure to clearly identify all the different components of your laboratory report (e.g. "Discussion Questions for Experiment #__").

- Complete the **Post-lab** assignments listed in the manual at the end of each experiment before coming to class. Write down the answers in your laboratory notebook. Write down the title "Post-lab Problems for Experiment #__" at the top of each page used for post-lab answers for easier identification.
- PREPARE FOR THE QUIZ** on the material of the experiment completed in the previous week. Please, note that even if you miss a lab for any reason, you are still responsible for learning the material missed and will not be excused from taking the quiz.
- DO NOT** wait until the next laboratory period to turn in your late Pre-labs, Reports, and/or Post-labs. Instead submit them to the General Chemistry storeroom (WEL 4.134), to any TA during their office hours, or bring them to my office (WEL 5.220B) at your earliest convenience. We will date it for you and pass it on to your TA for grading.

Laboratory notebook

- Use your laboratory notebook for pre-lab assignments, data collection and observations, laboratory reports, and post-lab assignments.
- Always use ink in your notebook.
- Never tear out original pages from your notebook. If you made a mistake, cross it out with a single line. If there is any unused space left on the page, cross it out with a single diagonal mark.

- Tear out and submit copy pages for grading.
- Write neatly and legibly. If we can't read it, we can't grade it.
- At the top of EVERY page of your notebook write down your name, your TA's name, date, and the section number (unique #).
- Always start the Pre-lab assignment for every experiment on a new page.
- Always start your laboratory Report for every experiment on a new page.
- Always start the Post-lab assignment for every experiment on a new page.
- Keep in mind that you will have to submit your laboratory notebook to your TA for grading at the end of the semester.

Safety

- In the beginning of the first laboratory period, your TA will show you around the lab and direct your attention to the various pieces of safety equipment, which include safety shower, eyewash fountains, fire blankets, and fire extinguishers. Make sure you know the location of the nearest emergency exits. In the event of an accident, do not panic. Call your TA, the instructor, or storeroom personnel immediately for assistance. They will help you resolve the situation.
- Wear safety goggles provided by the Chemistry Department at all times while you are in the laboratory. If you wear vision correction glasses, you still need to wear safety goggles (they will fit on top of your glasses). Failure to wear safety goggles will result in your expulsion from the laboratory and zero credit for the experimental part of that particular lab.
- Wear appropriate clothing to the laboratory. Long pants or long skirts and shirts that cover your torso completely and have at least a short sleeve are mandatory. Wear shoes that cover your feet completely. Sandals, clogs, and open-toe shoes are prohibited. If you dress inappropriately, you will be dismissed from the lab and sent home to change.
- Do not store your coats and backpacks on the bench tops or on the floor nearby. Special coat racks are provided in every laboratory room for your convenience.
- No eating, drinking, or chewing gum is allowed in the laboratory at any time.
- The use of cellular phones, tape, radio, CD, or MP3 players (including the use of headphones) is not allowed in the lab.
- Dispose of all the chemical waste into the designated waste containers located under the hood in every laboratory room.
- Always wash your hands with soap every time you leave the laboratory at the end of every lab period.

Storeroom

For selected experiments, you will need to borrow certain pieces of equipment from the storeroom. Make sure you sign your name on the checkout list when you check out the equipment and cross your name off the list when you return it back to the storeroom. Clean any borrowed equipment before you return it. You are financially responsible for any equipment checked out to you including the equipment in your laboratory drawer. To receive an unknown from the storeroom, you will need to fill out an "unknown slip". Your unknown number will be assigned to you by your TA.

If you drop the class after the check-in, you are required to check out your equipment drawer before the end of the semester. If you fail to check out on time, you will be charged a \$15 checkout fee in addition to the charges for any missing or damaged equipment.

Grading

Quizzes given during the lecture periods will constitute 30% of your final grade. The lowest quiz grade will be dropped. Laboratory work will account for the remaining 70% of your grade. The breakdown for the laboratory work is approximately the following:

Reports	41%
Pre-labs	5%
Post-labs	10%
Unknown Summary Sheets	10%
Lab Safety/Technique Evaluation & the Notebook	4%

Lab safety/technique evaluation score will be assigned to you by your TA at the end of every laboratory period. You will have to submit your lab notebook to your TA for grading at the end of the semester. There is no final in this class. There will be no curve. The grade breakdown is as follows:

90% and higher	A
80% - 90%	B
70% - 80%	C
60% - 70%	D

Regrades

You can request a regrade of your work within TWO WEEKS after you get it back from your TA. To be considered for a regrade, you must submit the original assignment in question (e.g. quiz, unknown summary sheet, report, etc.) accompanied by a written specific explanation of why you think you deserve a regrade. When submitted for regrade, the entire assignment (e.g. entire report or entire quiz) will be reviewed, which can possibly result in a lower grade. Regrades will not be considered for quizzes written in pencil. The unknown summary sheets submitted for regrade MUST be accompanied by the corresponding reports.

Attendance and make-up policy

- Laboratory attendance is mandatory.
- You are allowed to miss ONE laboratory session during the semester for any reason, i.e. late registration, illness, any type of emergency, observance of religious holy days, going out of town for any reason, oversleeping, opting to study for another class, etc. You do not have to notify anybody about the missed lab. Your absence will be recorded by your TA and you will be scheduled automatically to make up the missed lab at the end of the semester during the make-up session. Additionally, you will get an automatic 1-week extension for any work that was due on the missed day. No make-up quizzes will be granted.

NOTE: Experiments #5 through 7 are designed to be performed in sequence. Therefore, if you miss Experiment #5, you will perform Experiment #5 the following week while the rest of the class will be working on Experiment #6. If you miss Experiment #6, you will perform Experiment #6 the following week while the rest of the class will be working on Experiment #7. In both instances, you will be scheduled to make up Experiment #7 at the end of the semester. You will catch up with the rest of the class on the week when Experiment #8 is performed. Note, that you will still be taking quizzes on the same subjects as the rest of the class, even though in the lab you will be one experiment behind.

- ❑ More than one make-up will be allowed only under extreme circumstances. Those instances will be considered on the case-by-case basis. All the make-up permits (for more than one missed lab) must be requested from Dr. Leytner within one week of the second missed laboratory session. For scheduled university events, you must give at least 14-day advanced notice. If you must miss more than one laboratory session due to observance of religious holy days, it is the policy of UT that the student must notify the instructor at least 14 days in advance. No make-up quizzes will be granted.
- ❑ All other absences from the laboratory will be considered unexcused.
- ❑ An unexcused absence from the wet laboratory will result in a zero credit for the laboratory report and unknown summary sheet (if applicable) for the experiment performed on the missed day. In addition, a late penalty of 10% grade reduction per day for all of the assignments that were due on the missed day will apply.
- ❑ If you are more than 30 minutes late to the wet lab, you will not be permitted into the lab and will receive an unexcused absence for the missed laboratory with all the implications that come with it.
- ❑ If you leave the lab early without the permission from your TA, you will be given an unexcused absence for that laboratory and will receive zero credit for the laboratory report for the experiment performed on that day.

Scholastic Dishonesty

Scholastic dishonesty and plagiarism will not be tolerated. Examples of scholastic dishonesty include copying pre-labs, post-labs, or any parts of the report from somebody else's work, providing your own pre-labs, post-labs, or any parts of the report to somebody else to copy, making up data, falsifying data, presenting somebody else's work as your own. You will be reported to the Student Judicial Office and may fail the course if you are caught cheating.

Special note

If you require special assistance because of a physical or learning disability please notify me immediately. Arrangements and necessary accommodations will be made in compliance with UT policy and the American Disabilities Act. For more information contact Student Dean's Office (471-6259, 471-4641 TTY). All notifications and accommodations will be handled with utmost respect and confidentiality for the well-being of the student.

Schedule

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	September 5 <i>No Classes</i>	6 <i>No Classes</i>	7	8	9	10
11	12 Check-in	13 Check-in	14	15	16	17
18	19 Lab 1	20 Lab 1	21	22	23	24
25	26 Lab 2	27 Lab 2	28	29	30	October 1
2	3 Lab 3	4 Lab 3	5	6	7	8
9	10 Lab 4	11 Lab 4	12	13	14	15
16	17 Lab 5	18 Lab 5	19	20	21	22
23	24 Lab 6	25 Lab 6	26	27	28	29
30	31 Lab 7	November 1 Lab 7	2	3	4	5
6	7 Lab 8	8 Lab 8	9	10	11	12
13	14 Lab 9	15 Lab 9	16	17	18	19
20	21 Lab 10	22 Lab 10	23	24	25	26
27	28 Make-up, Check-out	29 Make-up, Check-out	30	December 1	2	3
4	5 <i>No Classes</i>	6 <i>No Classes</i>	7	9	10	11

- Lab 1 “Are the Densities of Coke and Diet Coke Different?”
- Lab 2 Separation and Recovery of the Components of a Mixture
- Lab 3 Qualitative Chemical Analysis
- Lab 4 Acid-Base Titration
- Lab 5 Synthesis and Analysis of a Complex Iron Compound. *Part 1: Synthesis*
- Lab 6 Synthesis and Analysis of a Complex Iron Compound. *Part 2. Oxalate Content by Redox Titration*
- Lab 7 Synthesis and Analysis of a Complex Iron Compound. *Part 3. Spectrophotometric Determination of Iron Content*
- Lab 8 Thermochemistry
- Lab 9 Chemical Kinetics Discovery Lab: *Determination of Reaction Mechanism*
- Lab 10 Acid-Base Equilibria

