Chem 1020: Introduction to Chemistry Laboratory
Summer 2013

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Location: **Science Building Room S 2600**

Text: The lab instructions/protocols are free for download at the website http://www.mctcteach.org/chemistry and under the Course Links column click on "Intro to Chemistry Chem1020".

You are responsible for obtaining the printouts of the lab protocols at least **one week before each lab, read the materials** and **come prepared**. **If you do not bring the proper protocol for a given lab activity, you will NOT be allowed to stay for that session (and you cannot leave to print off the protocol and then come back). No make-up lab is allowed for this missed one later either.** A good idea would be to get a three ring binder for lab only, print out all labs at the start of term, and simply bring that binder each week.

Lab Policies

Safety: During the first week of the term, **a mandatory safety session** will be offered during your registered lab sections. **You MUST attend this safety session**. Otherwise, you will not be allowed to carry out any lab experiments. Also, Minnesota State Law requires that you wear safety goggles **at all times** in the laboratory when any type of experiments are being conducted by you or others around you!!! **You are responsible for purchasing splash-proof safety goggles. You must bring your goggles with you to lab every week. (If you forget your goggles, you may borrow a pair but 1 point will be deducted from your quiz score.) Skin from neck down must always be covered and well protected; open-toed shoes, shorts and sleeve-less tops are NOT ALLOWED even on warm days!** Socks are required **Do not wear clothes with holes** (example, jeans pants with holes). Eating, drinking, gum-chewing or applying any type of cosmetics in the lab is prohibited. Also make sure to tie up long hair or scarves to prevent them from catching fire.

Attendance/Withdraw: Lab attendance is strictly enforced and will be recorded by lab instructors each time! **If you miss THREE or more lab sessions and do not withdraw yourself, your instructor will administratively withdraw you (LDA) from the course (including both lecture and lab, even if you have passing grades on lecture exams).** You will remain responsible for any financial liability and for any academic consequences due to this administrative withdrawal. If LDA is not an option at some point towards the end of the semester, you will receive a grade of "F" for the entire course regardless of your performance in the lecture part. In short, you have to finish at least 8 lab sessions out of 10 in order to be eligible for passing the course.

If you are late by 10 minutes to a lab session, you will NOT be allowed to take the quiz.
If you are late by 10 minutes or more, you will NOT be allowed to do the experiment at all.

Missing a Lab: If you have any unique situation that may prevent you from attending a lab (including a religious holiday), please consult with your lab instructor **as soon as possible and, at the latest, by the week before the lab session in question**.

- If you are unable to attend a scheduled lab, it may be possible for you to attend another lab session in the same week, as long as all three of the following requirements are met:
  - **you make your request by the Friday before the week in question,**
  - **there is space available in the lab session you hope to attend, and**
  - **you obtain advance permission from both your lab instructor and the instructor of the lab session you hope to attend.**
- You will not be able to make up a missed lab session if you have not obtained permission to attend another session by the Friday prior.
- In order to address last minute emergencies or illnesses that cause you to miss a lab session, your lowest lab quiz and lab report are dropped from your final grade calculation. If a second lab is missed, a grade of zero will be given to that lab.

Note: Since each student can drop **only one lab** without significantly affecting his/her grade, don't use this opportunity unless it is absolutely necessary.

Academic Dishonesty: Violations "including, but not limited to cheating, plagiarism, or knowingly furnishing false information to the college" (Student Code of Conduct), are strictly prohibited. Although students are encouraged to discuss laboratory procedures with each other in the lab, it is expected that each student will perform his/her own work, including **the writing of their lab reports in their own words.** Identical reports may indicate copying and both reports will receive a grade of zero for that experiment.

Laboratory Procedures and Grading Scheme

Grading Scheme: Each lab is worth 20 points: 10 points for the lab report and 10 points for the quiz. At the end of the semester, both the lowest lab score and the lowest quiz score will be dropped in your final lab grade calculation. The total points will constitute 20% of the grade for this course, assigned to the lecture section in which you are registered. Laboratory is considered an essential part of this chemistry course. Therefore, if you miss **THREE or more** laboratory sessions, you will not pass the entire course, even if you have received passing grades on lecture exams (see "Attendance/Withdraw" in the previous page for details).

Your Preparation: The labs generally come shortly after the same topics are covered in lectures, so make sure you understand the relevant basic principles from lecture.

- Read the experiment protocols and ask any instructors if you have questions.
- Go through the PowerPoint slides of the lab, available at the same website as the protocols, to visually learn about the apparatus, glassware, and important procedures.
- Complete the pre-lab exercise (part of the protocol) to prepare for the lab quizzes and lab reports since they often have similar questions. The answer keys to these exercises are also posted at the same website as the protocols.
- **YOU MUST bring the appropriate protocol for each lab, or you will not be allowed to do that experiment.**

Quizzes: A ten-point multiple-choice quiz will be given during the **first 10 minutes** of each laboratory period. This quiz will cover materials found in the protocol for that week. The quiz questions will mainly be about safety procedures, lab procedures, techniques, and concepts involved in the lab to be performed that week. **If you arrive late, you will not get extra time. If you are late by 10 minutes you will NOT be given the quiz. <u>You must score a 6 or better on the quiz to be allowed to participate in the lab. If you score lower than a 6, you will be asked to leave the lab without being able to make it up in the future.</u>**

Data: Record all data on data-sheet **in ink.** If an error is made, cross it out with a ~~**single line**~~ and enter the correct data. **Using whiteout on the data sheet during or after lab is prohibited.** After finishing the lab, show all experimental data and products to the lab instructor and obtain his/her signature on your data sheet regardless of the experiment or whether you are attending your regularly scheduled lab or not. **Any data sheet with whiteout on it or written in pencil will be considered invalid and will not receive any points for the data collected. Any data sheet without instructor's initial is considered invalid and will not receive any points for that entire lab report.**

Clean up: Always dispose the chemicals according to the instructions. Rinse the used glassware with tap water. Put the empty glassware in the designated areas. Wipe your work and bench areas using a sponge before leaving the lab. Additional cleaning duty may be assigned by your instructor. **Those who don't follow the clean-up procedure will be subject to 10% deduction in their lab report grades.**

Lab reports: The lab report is composed of the original data sheet and post-lab questions (both can be found in the protocols). After the lab period, finish the calculations on the data sheet and answer the post-lab questions in your own words. **Turn in the lab reports at the <u>beginning of the next scheduled lab period that you attend</u> to be eligible for full points.** Otherwise, late reports (turned in by the next scheduled lab session following their due date) will only be eligible for a maximum of 5 points out of 10. No lab reports will be accepted if more than one lab session overdue. **All lab reports must be submitted in person to the lab instructor in the lab. If you don't turn in the lab report at all, you will get a zero for that experiment.**

Tentative Lab Schedule

It is your responsibility to check the schedule before you start preparing for the lab for that week!!!
Print out the lab procedure from the mctcteach.org/chemistry
Bring the appropriate protocol for each lab, or you will not be allowed to do that experiment.

Week	Date	Experiments	Chapter Correlation
1	June 3 – June 4	Check-in & Safety Information	
	June 5 – June 6	Check-in & Safety Information (and make-up safety)	
2	June 10 – June 11	Observations of Substances and Their changes.	Chapter-3 and 4
	June 12 – June 13	Lewis Structures and VSEPR theory	Chapter-12
3	June 17 – June 18	Separation of Components of a Mixture	Chapter-3 and 4
	June 19 – June 20	**NO LAB**	
4	June 24 – June 25	Ionic Precipitation Reactions	Chapter-7
	June 26 – June 27	Acids, Bases and Indicators	Chapter-7 and 16
5	July 1 – July 2	Measurements	Chapter-2
	July 3 – July 4	**NO LAB**	
6	July 8 – July 9	Identification of a Liquid	Chapter-2
	July 10 – July 11	Empirical Formula	Chapter-8
7	July 15 – July 16	Aspirin Synthesis	Chapter-9
	July 17 – July 18	Titrations and Completion of Aspirin Experiment	Chapter-15 and 16
8	July 22 – July 23	**NO LAB**	
	July 24 – July 25	**NO LAB. All lab reports need to be submitted before JULY 25th, noon** (ask lab instructors for submission details). Absolutely no lab reports will be accepted after this deadline.	

Other Information

Forensic Science (CHEM 1145): Forensic Science course for Liberal Arts majors and Science Majors. Satisfies goal area 03 and goal area 09. The course is offered in both Fall and Spring semesters. You will learn the science of crime scene investigation and the criminal justice processes. You will participate in the student CSI Teams, collect mock crime scene evidence, be a scientist, and analyze the evidence. You will participate in mock court-of-law trials and learn about expert witness testimony.

Chemistry in Your Life course for liberal arts majors: For students who want to take a science course to satisfy the requirements of liberal arts programs or as lab science course, the chemistry department offers "Chemistry in your Life" (CHEM 1140) course.

The Regulatory Affairs course (BIOT 2320) in the chemistry and biotechnology program will be very useful for many majors, including biology, biotechnology, chemistry, health sciences, engineering, pharmacy, pre-med, pre-vet, sales, marketing, etc., and to pursue jobs and internships in clinical research settings, industry, academic, and government labs.

A.S. Degree Programs: MCTC offers Associate of Science degree programs in biology, biotechnology and chemistry. It is very much possible to also get dual majors. The courses in the programs transfer to four-year programs in various majors at the University of Minnesota, St. Cloud State University and other four-year institutions. The biotechnology program is also designed to prepare students for various positions in industry, government and academic research labs. The program includes **forensic science, biochemistry, cell culture techniques, undergraduate research, analytical instrumentation and other unique courses.** To learn more about the courses and the programs, register for the 1-credit Introduction to Bioscience **(BIOT 1000)** during the Fall or Spring semester.

Science Club, Engineering Club, Urban Farm Collective, and Three-Legged Frog Club: These clubs at MCTC provide opportunities for students to engage in co-curricular activities that greatly enhance learning experiences in science and environmental aspects beyond the classroom. Although participation is optional and does not count towards your grades for this lab course, you are strongly encouraged to take advantage of these resources. Watch for announcements and flyers for the club events. For more information about the Clubs, please contact Student Life Office and read the fliers announced by the Clubs.