



Chemistry 111, General Chemistry Laboratory A

Spring 2019 Syllabus

The following syllabus applies to *all* of the lab sections: Chem 111-001 to 111-003.

Lab Location: Flanner Hall 204

Students can only attend the section in which they are enrolled in LOCUS. Be mindful of day/time and location.

Pre/Co-requisite: Chem 101

Prerequisite: Math Placement Test or Math 117

Laboratory Coordinator: Dr. Andrew Basner

Office Hours: Monday 1:00 – 3:00pm and by a scheduled appointment

Office Hours Location: STEM Center in the Centennial Forum

Office Location: 428 Flanner Hall

Office Phone: 773-508-3135

Email: abasner@luc.edu

Put Chem 111, your section #, and your TA's name in the subject line of all emails

Teaching Assistants (TAs) will be assisting all of the laboratory coordinators during this course. Specific TAs and TA information will be listed in Sakai.

Welcome to Chem 111. We are looking forward to working with you this semester. Read the entire syllabus to understand the expectations of this course.

COURSE DESCRIPTION

This lab course emphasizes introductory application of topics/theory covered in the lecture course (Chem 101). It introduces students to basic chemical laboratory skills & techniques including lab safety, accuracy/precision, net ionic equations, pH, enthalpy, spectrophotometry, use indicators, a variety of laboratory equipment & glassware, basic statistics, etc. This list is not exhaustive but mentions the highlights.

Goals of course: 1) teach lab safety, 2) teach basic laboratory skills, 2) apply theory to practical use

Outcomes: 1) students know safe lab practice, 2) students properly identify & use glassware, analytical balances, hot plates based on the task at hand, 3) compute calculations and theoretical analysis questions coupled to each lab experiment.

REQUIRED ITEMS

- 1) Chem 111 Laboratory Packet (provided). It is essential that you read the experiment before coming to class so that you can complete the lab/datasheet in a timely fashion. Bring manual every week.
- 2) A composition notebook. A simple black and white, \$0.99 one will suffice.
- 3) Safety goggles. These must be type G, H or K goggles and must meet or exceed ANSI Z87.1 requirements. Safety glasses do not meet our requirements and are not allowed.
- 4) Long-sleeve Laboratory Coat (white is preferred coat color)
- 5) Appropriate clothing and footwear. See below for details*
- 6) Scientific calculator for most experiments and the practical quizzes. Cell phones are not calculators.
- 7) A non-erasable pen is required for all written work. No white out is allowed.

***Appropriate clothing must be worn that minimizes potential chemical contact with your skin. Shoes that adequately cover the entire foot are required. Sandals, open-toes shoes, perforated shoes, open-backed shoes are not acceptable. No skin should be exposed on your feet or legs, so clothing that covers and protects your body from the waist down (including your ankles) must be worn. Lab coat required.**

GENERAL POLICIES

- All written & Sakai work, as well as TA observations, serves as the basis for earning points and showing progress. Written work will be graded with an emphasis on correct use of significant digits, consistency of results (do data & observations match conclusions?), appropriateness/correctness of analysis, and thoroughness in responses.
- All work must be completed in non-erasable pen. This includes data sheets, homework assignments, and exams. Work not completed in pen or containing “white-out” is subject to a point deduction and is not eligible for any regrade requests.
- Completed written work is stored in a lab folder. Each week your TA will distribute this folder to your assigned seat. This functions as a way for your TAs to collect/return your work and to be an entire catalog of work completed throughout the semester. All graded assignments must remain inside of the lab folder. You may take the contents of your folder home before an exam in order to study, but everything must be returned when the exam is complete.
- If there are any discrepancies in grades recorded by your TA, proof of having earned a specific grade on a particular lab is the presence of that graded lab in your lab folder at the end of the semester.
- Each student is assigned a drawer with glassware and equipment. At the beginning of the semester & semester’s end, the drawer contents will be checked for completeness. The drawer is shared with other students over the course of a week. Therefore, it is essential that you clean the equipment used after an experiment is done. Drawers may be checked sporadically. If glassware is broken, the student is responsible for requesting a replacement item; there is no penalty for broken glassware.
- Two exams (practical quizzes) covering basic skills and comprehension will be given. In part, a laboratory exam requires a student to demonstrate knowledge/skills by performing tasks in the lab. In this way, a student’s ability to use equipment properly and demonstrate correct technique can be evaluated. An exam will also cover basic understanding of the fundamental models of chemistry illustrated in the lab experiments. **You may use your own graded data sheets, lab manual, syllabus, pre-lab lectures from Chem 111, and lab notebook on the exams.**
- Homework can never be submitted via email. No exceptions.
- Sakai work cannot be made up. There are no exceptions to this rule.
- Safety and Clean-up points will be earned on the basis of safe/professional conduct in the lab. A safe lab environment is essential. Any unsafe actions will definitely result in grade degradation. The following is a partial list of ways you can lose safety/clean-up points:
 - Coming late to class, after the pre-lab lecture has started will result in deduction of safety points.
 - Not dressing appropriately for lab. Proper footwear/clothing are required.
 - Not bringing goggles to lab/not wearing your goggles consistently in lab can result in expulsion from the lab. Safety glasses do not meet our safety requirements.
 - Not bringing a lab coat to lab. Not wearing the lab coat properly [buttoned] during lab.
 - Not keeping your equipment drawer or lab space in good condition (i.e. dirty glassware/bench).
 - Not adhering to Disposal Instructions indicated in each lab handout.

- The lab-pro equipment used is breakable, and requires special care. You and your partner will be assigned a box to use, and if the equipment is found to have been handled negligently, points will be deducted from both your safety points and your lab score.

An action, even if not herein, deemed unsafe by TA or Lab Coordinator will result in safety point deductions.

Failure to adhere to lab safety rules can result in expulsion from the lab session and/or course with no opportunity for make-up of the work. Safety should be taken very seriously.

ATTENDANCE/PARTICIPATION

Attendance is mandatory. You are required to come to class every week and can only attend the section in which officially enrolled in in LOCUS. There is a point value associated with the work accomplished in each class, and you cannot earn points for classes that you do not attend. **There are no makeups allowed i.e. students cannot make up a lab experiment that they missed due to absence.**

Students are not allowed to make up pre/post-lab quizzes, forums, or other Sakai work. Students are not allowed to make up a lab experiment in another section of Chemistry 111. Make-up exams (practical quizzes) are rarely allowed and handled on a case-by-case basis. Any granted practical quiz makeup must be completed by the student within 5 business days of the absence.

If the university is open, you are expected to attend class and be on time. Points are deducted for those who arrive late. If you arrive after the conclusion of the pre-lab lecture, you will not be allowed to perform the lab. That counts as an absence; no makeup work allowed. Being sent home for improper clothing/footwear also counts as an absence and no makeup work is allowed.

Review the schedule at the end of the syllabus and consider the negative impact that missing a hands on laboratory sessions will have on your educational experience, including performance on the practical quizzes. It is in your best interest to register for a section that does not conflict with other obligations. Students should not enroll in a lab section that they cannot fully attend. Missing 2 of the labs, which is nearly 25% of the lab work, is significant and unacceptable and will result in academic failure, as will missing one or both practical quizzes.

Students participating in co-curricular activities read the following applicable additional information. Students must make information concerning time conflicts with University

sponsored events available to the Laboratory Coordinator at the beginning of the semester. The Laboratory Coordinator reserves the right to contact the Athletics Department confirming time conflicts and regarding concerns. Students missing classes while representing Loyola University Chicago in an official capacity (e.g. intercollegiate athletics, debate team, model government organization) will need to discuss their needs with the Laboratory Coordinator. Sakai work cannot be made up in any circumstances, no exceptions. Laboratory work cannot be made up either; you cannot attend another lab section. These types of absences are handled on a case-by-case basis with remedy.

Students must discuss with faculty the potential consequences of missing laboratory and the ways [if any] this can be remedied. Students must provide the Laboratory Coordinator with proper documentation describing the reason for and date of the absence. The document must be signed by an appropriate Faculty or Staff member, and it must be provided to the Laboratory Coordinator as far in advance of the absence as possible. It is the responsibility of the student to proactively ask about what will be missed during the absence. If a student in co-curricular activities will miss either of the practical quizzes [and will know this in advance] it is in the best interest of the student to schedule the makeup exam with the Laboratory Coordinator prior to absence. Any missed practical quiz must be made up within 5 business days of the absence.

Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor within 10 calendar days of the first class meeting of the semester to request special accommodations, which will be handled on a case by case basis.

COURSE REPEAT RULE

Effective as of the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <https://luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

ROLE OF TEACHING ASSISTANTS

In each lab session, your primary interaction could be with a Teaching Assistant. The function of a TA is to help you get good data in a safe fashion, and to provide individual help on each lab when necessary. The role of the Laboratory Coordinator is more behind the scenes: plan the curriculum, prepare handouts and Powerpoints, and train the TAs so the lab experience is educational, fair, and effectively run for students enrolled in all of the sections. Please know that the Laboratory Coordinator will be in lab too, but may step outside of the lab from time to time to handle appropriate curriculum work. The Laboratory Coordinator is available to you during and outside of the laboratory hours if there are any questions or concerns that the TAs cannot handle appropriately. The Laboratory Coordinator has final authority in all matters relating to the course. Each TA will keep office hours, which will be posted on Sakai. Utilize both your Lab Coordinator and TA if you need assistance.

If at any point during the semester you want to talk to a Laboratory Coordinator regarding your TA, please do. The TA should enhance your educational experience. If this is not the case, the Lab Coordinator must know.

TUTORING

The Tutoring Center is offering free walk-in tutoring in Biology, Chemistry, Math, Physics, and Statistics. To see a full schedule of times, or to find more information on tutoring services, visit the Tutoring Center online at www.luc.edu/tutoring.

GRADING

Reference the established grading scale below. There will be no change in the grading scale or in the number of points allotted in this course. There are no dropped assignments in this course. There are no weighted grades in the course; it is simply points earned divided by total points possible. A zero (0) is the placeholder for work not completed. Remember that there is no makeup work for laboratory absences.

The University uses the +/- grading scale system and that system is implemented in this course. Rounding only applies to the final course grade percentage. Sakai reports course grades to TWO digits past the decimal (XX.XX%); this percentage of the final course grade is rounded to the closest integer. For example, an 89.50% or 89.90% (B+) rounds up to a 90% (A-), BUT an 89.30% or 89.45% (B+) round to the integer 89% (B+), as it is the closest integer.

Grades are posted on Sakai within one week of completing the work [hard-copy homework, datasheet, Sakai forum or post-lab quiz]. Pre-lab quiz grades can be seen as soon as the pre-lab work is completed in Sakai.

Any grading discrepancies must be resolved the day the graded work was handed back to the student. Any discrepancies in Sakai [grade input incorrect, for example] must be resolved no later than one week after reviewing the graded assignment. Grade disputes will not be entertained past this point and certainly will not be acknowledged the last day of class. Be mindful of this policy as it will not change.

Efforts are made to ensure that all Chem 111 TAs uniformly grade the content in this course. On very rare occasions, if it is found there are differences between TA's grading it may be necessary to scale a lab section's averages to adjust. When this is necessary, the average lab score mean is adjusted to the average quiz mean.

The lowest lab score will be dropped at the end of the semester.

Grading Scale:

% total	Grade
94 - 100	A
90 - 93	A-
87 - 89	B+
84 - 86	B
80 - 83	B-
77 - 79	C+
74 - 76	C
70 - 73	C-
65 - 69	D+
60 - 64	D
0-59	F

Point Breakdown:

Activity	Origin	Points
Intro to Data Analysis (SF)	lab	10
Lab 1a: Reactions of Reagents Pre-lab quiz	sakai	3

Lab 1b: Reactions of Reagents Datasheet	lab	20
Lab 1c: Intro Accuracy Hwk	sakai	5
Lab 1d: Clean up	lab	3
Lab 2a: Accuracy and Precision Pre-lab quiz	sakai	3
Lab 2b: Accuracy and Precision Datasheet	lab	20
Lab 2c: Acc and Prec graph	manual	5
Lab 2c: Accuracy and Precision Homework	sakai	5
Lab 2d: Clean up	lab	3
Lab 3a: Mass Relationships Pre-lab quiz	sakai	3
Lab 3b Mass Relationships Datasheet	lab	20
Lab 3c: Mass Rel Post Disc	sakai	4
Lab 3c: Mass Rel Post Disc Quiz	sakai	1
Lab 3d: Mass Rel % Comp Hwk	manual	5
Lab 3e: Clean up	lab	3
Lab 4a: Vitamin C Pre-lab quiz	sakai	3
Lab 4b: Vitamin C Datasheet	lab	20
Lab 4c: Clean up	lab	3
Lab 5a: Deductive Chemical Reasoning Pre-lab quiz	sakai	3
Lab 5b: Deductive Chemistry Datasheet	lab	20
Lab 5c: Ded Chem Post Disc	sakai	4
Lab 5c: Holmes Post Lab/Discussion Quiz	sakai	1
Lab 5d: Clean up	lab	3

Lab 6a: Estimating Avogadro's Number Pre-lab quiz	sakai	3
Lab 6b: Avogadro's Number Datasheet	lab	20
Lab 6c: Clean up	lab	3
Lab 7a: Energy Relationships Pre-lab quiz	sakai	3
Lab 7b: Energy Relationships Datasheet	lab	20
Lab 7c: Energy Rel Forum	sakai	4
Lab 7d: Clean up	lab	3
Lab 8a: Spectrophotometric Analysis of Aspirin Pre-lab quiz	sakai	3
Lab 8b: Analysis of Aspirin Datasheet	lab	20
Lab 8c: Aspirin homework	manual	5
Lab 8d: Clean up	lab	3
Lab 9a: % Hydrogen Peroxide in Dental Whiteners Pre-lab quiz	sakai	3
Lab 9b: % Hydrogen Peroxide in Dental Whiteners Datasheet	manual	20
Lab 9c: Clean up	lab	3
Lab Notebook	Notebook	20
Practical Exam 1	quiz	40
Practical Exam 2	quiz	38
Safety	lab	10
z Check out/ Magic Sand Activity	lab	5
Total Points		376

Grade if Absent:

As stated earlier in the syllabus, makeup work is not given. A zero (0) is recorded for work not completed, absent or not. Sometimes life happens and the Laboratory Coordinator understands that. Read carefully as this applies to an extenuating circumstance that cannot possibly be avoided.

If you miss a lab, contact your primary Laboratory Coordinator immediately.

Please request sample data for the lab experiment missed. The sample data is data similar to what you may have obtained in lab and may help you study for homework and the practical quizzes. (Sample data is not the Virtual Lab.) You will be responsible for understanding the missed material, and **normal deadlines always apply for completing homework and Pre-Lab Quizzes on Sakai. For graphs and homework where a hard copy is required, please turn the assignment into your Primary Laboratory Coordinator, with a note requesting full credit due to your absence the prior lab session.**

As a reminder, the lowest lab score will be dropped. If you miss a lab, the missed lab will be dropped. Keep in mind, this only applies to the 20-point data sheet score, all sakai work, post lab work, etc, must be completed. .

EDUCATIONAL GOAL

In this general chemistry laboratory course, my purpose as your Chemistry instructor is to provide a hands on introduction to experimental methods of scientific investigation in Chemistry. The fundamental models of chemistry discussed in lecture will provide the basis for understanding the experimental laboratory work. Each lab will provide a practical opportunity for you to gain competence with the basic techniques of lab work and the practical experience necessary to understand its significance. It is my wish that this laboratory experience will encourage students who are seeking intellectual challenges along with an understanding of the chemical principles in the laboratory.

Conducting experiments and collecting data to test the validity of theories and models requires a different set of skills that those required for success in the lecture part of a general chemistry course. During a laboratory activity, each student's hands, mind, eyes, as well as other senses are focused on the task at hand. Success in the lab involves skills in making perceptive qualitative observations and accurate quantitative measurements.

With each laboratory experiment, relevant questions are posed, and along with TAs, I help each student to execute a laboratory approach which will yield reliable data related to these questions. Each student is required to obtain data and to depend upon this data when answers to these questions are drafted. All labs are structured enough so that you should not feel lost or confused, but not so structured that you will find it unnecessary to think for yourself.

REGARDING SAKAI AND TECHNICAL DIFFICULTIES

It is *strongly encouraged* that all required submissions to Sakai as well as writing lab reports, opening course/data/experiment files, be done on a reliable wired internet connection [not wireless], that of which the University itself provides in the Information Commons and various computer labs on the Lake Shore Campus.

Under NO circumstances will excuses of “technical difficulties” be accepted as this syllabus is stating all students should use a wired internet University computer [not wireless internet] to submit work in Sakai, write lab reports, open course/data/experiment files. This list is not exhaustive and it should be noted that any activities this course may require a computer or internet connection for should be completed using University computers with wired internet connection. Use of home internet [wired or wireless], University wireless, or public wireless is at your, the student’s, own risk. It is not prohibited but as Instructor has stated in this syllabus, Instructor is not responsible for technical difficulties of non-University devices [cell phone, tablet, home/work/public wireless internet or computer]. Do not submit items in Sakai using a cell phone or a tablet device as these do not count as reliable internet connection tools.”

ACADEMIC INTEGRITY

The standard of academic integrity and personal honesty delineated in the College of Arts & Sciences Statement on Academic Integrity is expected of every student and will be enforced. Details can be found at http://www.luc.edu/cas/faculty_resources.shtml. Cheating can take many forms in lab, but the most common forms are copying data and answers to analysis questions, sharing files for homework, or completing Sakai work with another person. The data and analysis as well as the homework submitted for grading must be your own. If it is not, no credit will be awarded for the entire lab, nor will make-ups be granted. Findings of dishonest academic behavior are reported to the Chair of the Chemistry Department and to the Dean’s Office, and are entered into an individual’s record. Copied answer/report will result in penalty for all students involved.

DISABILITY ACCOMMODATIONS

If you have a documented disability and wish to discuss academic accommodations, see your primary Laboratory Coordinator by the second meeting of lab. (The Coordinator of Services for Students with Disabilities is located in the Sullivan Center for Student Services and must be contacted independently.)

Necessary accommodations will be made for students with disabilities who procure a SSWD letter. However, to receive any accommodations self-disclosure, proper documentation, and registration with the SSWD office at Loyola University Chicago is required. Accommodations cannot be made until the Laboratory Coordinator receives proper documentation. Furthermore, accommodations are not retro-active and begin only once appropriate documentation has been received by the Laboratory Coordinator in a timely manner. Recognize that the course time scheduled in LOCUS is fixed. No extra time on wet chemistry is given to a student with an SSWD letter; it is not possible.

Only those accommodations that are specifically listed in the formal SSWD letter will be provided. If an accommodation suggests the Testing Center be utilized to take an exam, it is the student's responsibility to schedule the testing time in the center. The student also must consult & arrange with the Laboratory Coordinator for the in lab practical portion of an exam, which cannot be done in the Testing Center.

SSWD Policies and Procedures can be found here: <http://www.luc.edu/sswd/>

IDEA: Individual Development and Educational Assessment

Objective 1: Learning to apply course materials (to improve thinking, problem solving, and decisions)

- Understand and apply proper labeling to include a value, units, and chemical identity, as well as pertinent stoichiometry and other relevant calculations.
- Understand and apply the rules for obtaining the correct number of significant figures with analysis of personally taken data.
- Execution and analysis of results.

- Analysis and understanding of the meaning of percent relative error.
- Understanding the creating graphs and the meaning of graphs.
- Understanding and analysis of the result of errors in the procedure execution.

Objective 3: Gaining factual knowledge (terminology, classifications, methods, trends).

- Competent recording of observations.
- Produce correct Net Ionic Equations and understand their meaning.
- Use best practices with balances.
- Competent use of volumetric glassware.
- Proficient use of burets.

LOST AND FOUND

Any items mistakenly left in lab will be taken to the Chemistry Department office, 125 Flanner Hall, and can be identified and claimed there. **Please put your name on your data sheets, lab manuals, calculators, notebooks, and other personal items.**

SAFETY IN THE LABORATORY

Laboratory safety is everyone's responsibility. By registering for and participating in this course you agree to abide by all of the safety precautions, information, and rules provided to you herein as well as in or outside of the laboratory. Failure to follow these rules constitutes grounds for withdrawing the offending student from the lab session and or course at any time.

The Laboratory Coordinator, TA, and University take safety in the laboratory very seriously. Make sure to always listen to information regarding extra safety precautions when applicable. The rules of safety listed on the following page are reviewed during the first day of the laboratory course. Practice safe laboratory conduct during the entire semester and beyond. This list is not exhaustive and it is the student's responsibility to understand the proper, safe conduct when working in a laboratory. Students cannot complete experiments in the course unless the safety lecture and safety form are completed.

By using common sense and following all of the safety rules provided, it is unlikely that you or your classmates will be involved in or injured in a mishap in the laboratory. While it is very

important that you do your part to prevent an accident from occurring, it is just as important to know what to do if someone is injured.

There are several key safety features of a laboratory that will be pointed out during the first day of class.

Your commitment to safety [including the following rules] is very important:

1. To always be on time to lab. Coming in late violates safety. Pre-lab lecture starts on time and missing any of its content is unsafe.
2. To wear approved safety goggles¹ and a [buttoned] long-sleeve laboratory coat at all times in the laboratory. Safety glasses are NOT allowed under any circumstances.
3. Non-latex, nitrile glove are optional but *highly* encouraged, especially when working with acids and bases or solvents. Do not wear gloves in the hallway or anywhere outside of lab.
4. To know both the location of and how to use eye washes.
5. Not to wear contacts in the laboratory. Eyeglasses are recommended.
6. To wear appropriate clothing that minimizes potential chemical contact with your skin. A lab coat is required, as are shoes that adequately cover the entire foot. Sandals, open-toe shoes, perforated shoes, open-backed shoes are not acceptable. No skin should be exposed on your feet, ankles, or legs, so clothing that covers and protects your body from the waist down (including ankles) should be worn. You must be dressed appropriately to do experiments.
7. To know both the location of and how to use the safety showers.
8. To know both the location of and how to use the fire extinguishers.
9. To know the proper clean-up and disposal procedure for broken glass.
10. Not to perform unauthorized and unknown experiments, nor work in the lab alone.
11. Not to take chemicals or equipment out of the laboratory.
12. Not to engage in horseplay or any clowning around that may endanger you or other students.
13. Not to eat, drink, chew gum, or smoke anything in the laboratory at any time. No headsets, cell phones, or any other audio devices.
14. Cell phones cannot be used as calculators.
15. To pull long hair back, keeping it away from chemicals and open flame.
16. To keep your lab space clean and tidy. This includes locking your lab locker when done.
17. To ask your Instructor or TA when in doubt about procedures.
18. Inform your Instructor of any health condition you have that might affect your performance or safety in the laboratory.

Preventing an accident or injury from occur is the ideal case scenario, which is why proactively being safe in the laboratory is desired. We live in the real-world and therefore have to be reactive in case of a lab incident. The information provided on the following page are some basic reactive procedures to difference scenarios that have occurred in the laboratory.

Although not a requirement, it can be very helpful if a Laboratory Coordinator knows if a student has a condition that could possibly render an unsafe lab situation (allergies to latex, heart condition, seizure risk, etc.). Do feel free to discuss any concerns you may have regarding health conditions and laboratory work.

If you have any questions regarding the content of this syllabus, including the safety information provided, you are encouraged to discuss all questions/concerns with the Laboratory Coordinator.

FIRST AID BASICS

Minor Cuts: Clean the wound, remove foreign material. Band-Aids are available. (Two Band-Aid rule:

If you bleed through one Band-Aid, another should be applied over the first Band-Aid. If you bleed through two Band-Aids in a few minutes, you will be escorted to Health Services). Additionally, if there is any possibility of broken glass in a cut, you will be escorted to the Wellness Center.

Minor Burns from Fire: Immerse affected area in ice water.

Chemicals in Eyes: Immediately flush eyes with water at the eye wash. Continue with flush for at least

10 minutes. Hold the affected eye(s) open to do this properly.

Chemicals on Skin: Rinse affected area with water immediately at the sink or safety shower. If clothing

is affected, remove clothes before rinsing! Continue to rinse for at least 10 minutes.

Critical Injuries include: glass in his/her eye(s), serious cuts, severe chemical burns, severe fire burns, seizures. **Immediately call for help using either the lab phone (security number is taped to phone handle) or the emergency phone in the hallway directly outside the laboratory.** Anyone with chemicals or foreign objects in his/her eye(s) will be escorted to the Wellness Center or to the hospital.

FIRE HAZARDS

The primary heat source in this laboratory is the Bunsen burner, which is fueled by natural gas. A lit Bunsen burner is a small, controllable fire, but the heat generated by the burner fire can be quite hazardous in certain circumstances. It can serve as an ignition source for other combustible materials in the lab, such as paper (lab handouts, paper towels, filter paper, etc.), plastics (wash bottle), flammable liquids (acetone, ethanol). A burner fire can also ignite clothing and hair. Proper operation of a burner and the absence of combustible materials in the proximity of the burner will significantly reduce the risk of a fire.

Keep chords and paper products away from laboratory hotplates. Always make sure hot plates are off & un-plugged before leaving the lab. Avoid spilling chemicals on hot plates.

Each lab is equipped with several fire extinguishers, fire blanket, and safety showers, which should be used in a fire emergency.

In a case of a fire:

Remain calm; alert the instructor and your immediate neighbors.

Personal safety, yours and others in the labs, is always the top priority.

A small fire in a small container can be suffocated by covering it with a watch glass or inverted beaker.

With a somewhat larger fire, decide whether or not you think you can control it with a fire extinguisher.

Use of a Fire Extinguisher:

Located by the doors in both labs; a back-up fire extinguisher is located at the west end of the floor.

Maintain an escape position; i.e. stay between the fire and the doorway.

Break the plastic ring, pull out the metal ring, release the hose from the bracket, direct the hose at the base of the flames, and press the lever down. PASS (pull, aim, squeeze, sweep).

Note: Fire extinguishers are heavy and not particularly easy to direct. These are multi-purpose, dry chemical extinguishers, safe for anything we use in lab.

The Laboratory Coordinators reserve the right to revise this syllabus in order to correct any unintentional mistakes and/or to change the labs or lab directions for the class if necessary. Students will be notified if any changes have been made.

Tentative Chem 111 Order of Lab Experiments

Intro	Intro to Data Analysis
Lab #1	Reaction with Ordinary Materials
Lab #2	Accuracy and Precision in Measurement of a Salt Solution
Lab #3	Determining Both Chemical Equations and Percent Composition from Mass Relationships
Lab #4	Determination of the Vitamin C Content in Juice
Lab #5	Deductive Chemical Reasoning
Lab #6	Estimating Avogadro's Number Using Octadecanoic Acid
Lab #7	Energy Relationships in Chemical Equations
Lab #8	Spectrophotometric Analysis of Aspirin
Lab #9	Percent Hydrogen Peroxide in Dental Whiteners

Spring 2019 Schedule

Month	Mon	Tues	Wed	Thur	Fri
Jan	14	15 Intro/Safety	16	17	18
	21 MLK No Labs	22 SF	23	24	25
	28	29 Lab 1	30	31	1
Feb	4	5 Lab 2	6	7	8
	11	12 Lab 3	13	14	15
	18	19 Lab 4	20	21	22

	25	26 Quiz 1	27	28	1
Mar	4 Spring Break	5 Spring Break	6 Spring Break	7 Spring Break	8 Spring Break
	11	12 Lab 5	13	14	15
	18	19 Lab 6	20	21	22
	25	26 Lab 7	27	28	29
Apr	1	2 Lab 8	3	4	5
	8	9 Lab 9	10	11	12
	15	16 Quiz 2	17	18 Easter	19 Easter
	22 Easter	23 Checkout	24	25	26
Finals Week	29	30	1	2	3