

Syllabus for CHM 204: General Chemistry I Laboratory

MWF • RGSB 121 • 12:30–3:15 PM • Summer 2019

<http://freitag.creighton.edu/CHM204>

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Office Hours: Monday: 9:00–10:00 AM, 11:30 AM–12:30 PM
Tuesday: 11:30 AM–2:00 PM
Wednesday: 9:00–10:00 AM, 11:30 AM–12:30 PM
Thursday: 9:00–10:00 AM, 11:30 AM–2:00 PM
Friday: 11:30 AM–12:30 PM

I will be in during my scheduled office hours, but I am more than happy to see you almost anytime you find me in the office. You're also welcome to schedule an appointment; just send me an email.

Course Description: Laboratory portion of CHM 203; experiments relevant to the content of CHM 203 are performed.

Location: Pre-lab lectures and quizzes will be held in HLSB 244. We will then proceed to RGSB 121 (the General Chemistry Lab) for the experiments themselves.

Course Goals:

1. To introduce students to the foundational skills of laboratory work, including
 - the identification and proper use of common laboratory glassware and equipment
 - common techniques and skills used in chemistry laboratories
 - the conventions in keeping a laboratory notebook
2. To complement the instruction in CHM 203 by providing opportunities to use the foundational skills to explore scientific concepts covered in lecture.
3. To teach students about the scientific process and allow them to practice it.
4. To develop students' critical thinking skills.

Co-Requisite: CHM 203: General Chemistry I (co-requisite). If you drop CHM 203, you may be required to drop this class as well. Please meet with me to discuss your options.

Required Materials:

(Available for purchase the first day of lab if you do not have them already; please bring cash or check.)

- Lab notebook with numbered, bound pages and carbonless copies (\$15; can be used at least two semesters)
- Safety glasses (\$5; can be used indefinitely)

TA: Mia Morrissey. Mia is here to aid with safety and to help answer questions and provide tips in the lab. Please take the opportunity to get to know Mia and ask her any questions you might have during the lab. Outside of lab time, however, her time is her own, and any questions you might have should be directed to the instructor.

Course Communication: All official course communication will take place via e-mail to your Creighton University account and announced in class, if possible. It is your responsibility to check your e-mail regularly and to ensure that your inbox is empty enough to accept incoming e-mails.

E-mail is the best way to reach me for administrative matters, such as informing me you will be absent, or to make an appointment to meet with me. You can expect that I will answer e-mails within 24 hrs; I will often reply faster.

Office hours are the best way to discuss material. They are also the only time I will discuss grades/grading issues. If you have questions about material, please bring your work! I cannot answer the question ‘what am I doing wrong’ if I don’t know what you’ve done!

University Closure: In the event the university announces an official closure, you may assume that labs during that time are cancelled without further announcement. This syllabus will then be subject to change. This may include changes to grade weighting, the attendance policy, the order or content of labs, or the method in which instruction is delivered. Such changes will be distributed via e-mail as soon as known, and announced in lab once classes resume.

Attendance: A quiz will be given at the beginning of most lab periods (see *Calendar of Experiments*). If you arrive late, but while the quiz is still being given, you will be allowed to use the remainder of the time to complete the quiz. If you arrive after the quiz has been collected and the pre-lab lecture has started, you will be counted absent and will not be allowed to perform the experiment, as you have missed relevant announcements, safety and procedural information for the experiment. *Any absence*, with the exception of documented, pre-arranged absences due to University-related activities, will result in a zero for that day’s lab report and quiz. Your single lowest lab report and quiz scores will be omitted in the calculation of your final grade, so consider carefully when/if you miss the lab. Absences for University-related activities may only be made up if you contact me at least one week in advance to make arrangements, and provide documentation (a memo or e-mail from a Creighton faculty or staff member documenting the reason for your absence and explicitly stating that arrangements should be made for you to make it up.) Due to the very hands-on nature of this course, **missing three or more experiments, regardless of the reason, will result in an F being assigned.**

Grading Scheme: There are four components of your grade in this class:

Quizzes: (13 @ 10 pts each: lowest score dropped.) At the beginning of most regular lab periods after the first, a closed-book/closed note-

book quiz will be given, covering material from the previous lab, the one you are doing that day, and even some general lab skills. You will have 10–15 minutes to complete the quiz. Continuing to work on the quiz after time has been called will result in a score of zero on that quiz. Your lowest score will be dropped in the calculation of your final grade.

Lab Work: (12 @ 25 pts each: lowest score dropped.) For each lab, you will be required to turn something in before you leave. At the beginning of the course, this may be a worksheet. As the semester continues, it will typically be a lab report, written in your lab notebook. The format for the lab reports is discussed in an additional handout, but the primary components are:

Title and Introduction. When required, this part must be written in your lab notebook and completed *before* the beginning of the pre-lab lecture. The TA will initial this section when you arrive in the lab.

Procedure, Data, and Observations, Calculations and Conclusions. When required, this part must be completed in your lab notebook and turned in before you leave the lab.

Some portion of the 25 points will be allocated to not just the writeup, but to items such as keeping a neat and organized notebook, observing proper safety procedures, cleaning up after yourself, etc.

Graded work (both lab work and quizzes) will be returned as soon as possible—typically at the next lab period. It is *your* responsibility to double-check the accuracy of all grades after an assignment is returned. In addition to the actual points assigned for a problem, this should include double-checking the addition of points. You have *three days* after a lab report or quiz is returned to dispute how an assignment was graded by bringing the assignment *to my office* (or making the appointment to do so). I will then regrade the entire assignment and assign the new grade, whether higher or lower. I will always be willing to discuss your assignment with you before you decide on a regrade, and strongly encourage you to bring any questions (whether about grading, or about how to improve your work) to my office.

Final Grade Assignments: 395 points are possible in this class, broken down as follows:

Item	Points
Quizzes	12 @ 10 pts each = 120 pts
Lab Work	11 @ 25 pts each = 275 pts

Final course grades will be rounded to the nearest whole number and will be assigned based on the following scale:

A	B+	B	C+	C	D
91%	86%	81%	76%	71%	61%

Creighton University defines letter grades as follows:

- A** *outstanding achievement and an unusual degree of intellectual initiative*
- B+** *high level of intellectual achievement*
- B** *noteworthy level of performance*
- C+** *performance beyond basic expectations of the course*
- C** *satisfactory work*
- D** *work of inferior quality, but passing*
- F** *failure—no credit*

Academic Honesty: Academic dishonesty, in any form, will not be tolerated. Links to the full policy of the Creighton College of Arts and Sciences (excerpts of which are below), a full discussion of what constitutes academic dishonesty, and the formal policies are available on the College's website. For the purposes of this class, academic dishonesty includes (but is not limited to):

- “Unauthorized collaboration or use of external information during examinations.” This includes the pre-lab quizzes.
- “Plagiarizing or otherwise representing another's ideas as one's own.” This includes copying/paraphrasing portions of your lab report (including the introduction) from the lab manual, handouts, ‘old files’, your lab partner, what you find with Google, etc.
- “Falsely obtaining, distributing, using or receiving test materials.”
- “Soliciting or offering unauthorized academic information or materials.” This could include sharing quiz questions between sections.

- “Falsifying experimental data or appropriating the experimental data of another without explicit permission of the instructor.” i.e., ‘dry-labbing’
- “Engaging in any other conduct that is intended or reasonably likely to confer upon one's self or another unfair advantage or benefit respecting an academic manner.” This could include providing your lab report to someone else to copy, for example. *You are responsible for what happens to your work.*

While you are welcome—and encouraged—to discuss conclusions, calculations, etc. with each other, the TAs and me, **you must put it all in your own words, and do so based on the work that you did in the lab.** If you are uncertain about whether something is permissible, please ask!

Any incident involving academic dishonesty may result in a zero for the activity (lab report, quiz, etc.), and a detailed account of the incident being made to the Dean of the College of Arts and Sciences. A zero received for academic dishonesty will *not* be dropped in the calculation of your final grade.

Safety: You will be given safety instructions specific to each lab during the pre-lab session. General rules and precautions for *all* experiments are included in the preface of the lab manual. Those pages document policies of this class, and are to be considered a part of this syllabus. ***Failure to follow these rules, or behaving in a manner that jeopardizes your safety or the safety of others, may result in immediate dismissal from the laboratory, and forfeiture of all points associated with that experiment.***

A Final Note: What you take away from this class, both in terms of learning and your grade, is up to you. We—your TAs and I—are here to help, but the responsibility lies with you. The best advice I can provide you is to take advantage of all the resources available: ask questions in lab, while material is still fresh in your mind, arrange to meet with me, visit the tutors, etc. Learning chemistry is not always an easy road, but it can be a rewarding one. No matter your major, the skills you develop in making observations, thinking critically, and drawing conclusions will be of benefit to you.

Special Thanks: To Dr. Jess Gunn for writing the syllabus that this irreformable *theoretical* chemist has shamefully (but with permission) copied nearly verbatim.

Calendar of Experiments:

Date	Experiment	Quiz
Mon, 10 Jun	Expectations, etc.	<i>none</i>
Wed, 12 Jun	Introduction to the Laboratory	Quiz 1
Fri, 14 Jun	Qualitative Analysis	Quiz 2
Mon, 17 Jun	Elemental Analysis	Quiz 3
Wed, 19 Jun	Synthesis of $\text{K}_2[\text{Cu}(\text{C}_2\text{O}_4)_2(\text{H}_2\text{O})_2]$	Quiz 4
Fri, 21 Jun	Classes of Chemical Reactions	Quiz 5
Mon, 24 Jun	Microscale Precipitation	Quiz 6
Wed, 26 Jun	Lab Skills: Serial Dilution	Quiz 7
Fri, 28 Jun	Acid-Base Titrations	Quiz 8
Mon, 1 Jul	Molecular Structure	Quiz 9
Wed, 3 Jul	Intermolecular Forces	Quiz 10
Fri, 5 Jul	No lab	
Mon, 8 Jul	Enthalpy of Neutralization	Quiz 11
Wed, 10 Jul	Hess' Law	Quiz 12
Fri, 12 Jul	No lab (we will meet for quiz only)	Quiz 13