



## Chemistry 111: General Chemistry Laboratory I

The mission of Concord University is to provide quality, liberal arts based education, to foster scholarly and creative activities and to serve the regional community. (<http://www.concord.edu/academics/>)

### Course Information

Course: Chemistry 111: General Chemistry Laboratory I

Section: 20

Credit Hours: 1 credit

Room: Science Hall 308

CRN: 20232

Semester Taught: Spring 2019

Time: M 6:30 PM-8:20 PM

### Co-requisite

CHEM 101

### Instructor Information

Professor: Dr. Darrell W. Crick, Associate Professor of Chemistry

Email: [dcrick@concord.edu](mailto:dcrick@concord.edu) (best way to reach Dr. Crick)

Office: Science Hall 401A

Office Hours: M 1:00-2:50, TR 11:00-1:00, W 10:00-11:00 and by appointment

Phone: 304-384-5169 Fax: 304-384-6225

Website: <http://www.concord.edu/physci/>

Note that providing assistance to a student often requires going to the laboratory. If I am not at my desk during office hours, please check 407, 408, and other nearby fourth floor labs. Any changes to office hours will be posted on my door and announced in class or by email/posting to Moodle as appropriate.

I strongly encourage students to visit my office hours and email with any questions related to the course. I am here to help you be successful.

## Course Description/Rationale

A laboratory course designed to accompany the concepts presented in CHEM 101. A grade of C or better in CHEM 111 is required to take 200-level and above CHEM courses. Must be taken concurrently with CHEM 101.

This is an introductory chemical laboratory course designed to build laboratory skills and enhance analytical thinking skills which are textitized in CHEM 101. Students will learn basic techniques used in chemistry, perform a wide variety of experiments and communicate the results via written reports. The laboratory skills learned in CHEM 111 will be applicable in more advanced chemistry and biology courses.

## Required Text and Materials

CHEM 111: General Chemistry Laboratory I manual (available in the Concord bookstore)

Other required materials:

- Full-seal safety goggles
- Permanently-bound composition book for use as laboratory notebook
- Calculator
- Sharpie permanent marker
- Combination lock for lab drawer (1 per lab group)

## Course Management System

This course will use Moodle.

Course resources will be available at [moodle.concord.edu](http://moodle.concord.edu). The instructor will add students to the appropriate Moodle section.

## Hardware/Software Needed

Access to a computer with a modern, standards-compliant browser (Safari and Chrome work best) and an internet connection will be required to access library resources, Moodle, and online homework assignments. Access to an office software suite will be required to complete some assignments. Microsoft Office (Word/Excel/PowerPoint/OneNote) is provided by Concord. The freely available packages iWork (Pages/Numbers/Keynote), LibreOffice, OpenOffice, and NeoOffice will perform equally well. Specialized software may be required in some instances and will be available on departmental computers for student use.

An optional text messaging service is available and students are encouraged to join. Phone numbers are kept private using this system. The instructor will provide instructions for joining the list.

## Course Description

### Concord University Educational Goals

**Skills:** Proficiency in interpreting data, integrating information, formulating ideas, thinking critically, and communicating with others, as demonstrated by the following competencies: 1. Effective inter-communication skills and literacy adapted as needed for the demands of various kinds of discourse:

- listening and speaking
- reading and writing
- numeracy
- graphic communication
- non-verbal communication
- media and technology literacy

**Knowledge:** Familiarity with principles underlying academic discourse in various fields, as demonstrated by the following capabilities:

2. An awareness of the fundamental characteristics and properties of the physical universe.

### Department Mission

The Department of Physical Sciences challenges students to become interdisciplinary, ethically responsible professionals and scientists. Our degree programs and courses engage students with fundamental scientific content with the aim to transform them into leaders in their discipline and equip them to succeed in future careers and post-graduate studies. Our faculty foster a dynamic learning environment that broadens students' knowledge, skills, and attitudes through active-learning curricula. Our mission drives the [Educational Goals and Objectives](#) of our programs.

### National Standards

Not applicable, but the course has been designed with input from the recommendations of the American Chemical Society Committee on Professional Training.

## Specific Learning Outcomes

As a result of taking the course, the student should be able to:

- Apply the concepts covered in CHEM 101
- Recognize and predict hazards of chemical manipulations and respond properly to perform laboratory experiments in a safe manner
- Perform accurate and precise quantitative measurements
- Interpret experimental results and draw reasonable conclusions
- Assess the reliability of results and recognize sources of error
- Demonstrate the ability to work effectively in small groups
- Summarize experimental results via written communication in a clear, concise manner

## Course Requirements

The following assignments will be used to determine the student's grade in the class.

**It is important to note that lab partners are partners in data collection only. Each student must complete their own pre-lab exercise, maintain a proper notebook, and submit their own writing assignments.**

### Pre-laboratory Exercises

Pre-lab exercises are designed to familiarize the student with the lab exercise and stimulate thinking about how the experiment will be designed and executed. These assignments will be posted on Moodle and must be completed at least 30 minutes prior to the beginning of YOUR lab session each week. These pre-lab assignments will be graded. Three attempts are allowed for each pre-lab and the highest score will be used. A student will not be allowed to enter the laboratory without completing the pre-lab assignment.

### Lab Notebook

Each student will keep a laboratory notebook, which should be a primary record of your experimental procedures, results, data analysis and discussions. A detailed description of how to keep a laboratory notebook is provided in your laboratory manual. The notebook must be initialed by the instructor prior to leaving each lab. A grade of zero will be entered for the notebook grade for any lab for which an instructor's initials are not present. Several times throughout the semester, notebooks will be collected and graded.

## Evaluation

You will be assessed each week on your: preparedness, ability to work safely, technique, knowledge and overall citizenship in the lab.

## Writing Assignments

Throughout the semester, each student will write laboratory reports of increasing complexity for various laboratory exercises as instructed by the professor. *Each student must submit their own, independently prepared assignment. No group submissions are allowed.* Each assignment will be critiqued and graded. Beginning with a single section, subsequent reports will add material until the final report resembles a typical scientific paper. Through these assignments, you will learn how to effectively write a scientific paper. A detailed description of how to write a laboratory report is provided in your laboratory manual. Reports will be submitted using the Moodle course management system.

## Exam

Late in the semester, you will take a comprehensive exam to assess what you as an individual have learned. Some of the exam will be conducted in the laboratory. You will rotate around the various stations and be asked to answer a question, record a measurement, perform a laboratory technique, etc. The other portion of the exam will consist of questions that test your understanding of chemical principles, data analysis, etc.

## Grading Policy and Scale

The student's grade will be determined as follows:

- Pre-lab Exercises: 15%
- Lab Notebook: 25%
- Evaluation: 10%
- Writing Assignments: 40%
- Exam: 10%

Students who fail to complete 2 or more laboratory exercises will receive an "F" for the course.

Scale A: 90-100% B: 80-89% C: 70-79% D: 60-69% F: <60%

### **Make-up Policy**

Regular attendance is essential for adequate performance and is required. Accommodations for documented university or medical excused absences will be made on a case-by-case basis. In situations where the student is aware of the absence in advance (athletic events, field trips, etc.), arrangements for completing required work either before or no later than seven (7) days after the absence must be made prior to the absence.

### **Late Assignments**

Assignments that are not submitted at the specified times will be considered late. There will be a 10% deduction for each day late. "Technological difficulties" such as last minute computer failure or inability to access the internet are not acceptable excuses.

Pre-lab lecture: Due to important safety information given in the pre-lab lecture, students who arrive late for lab will not be permitted to enter the laboratory. Except in extreme cases, no make-up for the missed lab exercise is possible.

## Course Timeline

This timeline is tentative and subject to change. Changes will be announced in class and posted to the forum on Moodle.

Lab	Date	Topic
	1/14	Class cancellation due to inclement weather
	1/21	<b>NO CLASS - MARTIN LUTHER KING, JR. DAY</b>
1	1/28	Lab Safety/Significant Figures/Measurement Part 1
2	2/4	Measurement Part 2 <b>Notebooks Due</b>
3	2/11	Paper Chromatography
4	2/18	Spectroscopy - Beer's Law <b>Writing Assignment 1 due</b>
5	2/25	Precipitation Reactions, Limiting Reagent
6	3/4	Precipitation Reactions, Solubility <b>Writing Assignment 2 due</b> <b>Notebooks Due</b>
	3/11	<b>NO LAB - SPRING BREAK</b>
7	3/18	Redox Titration
8	3/25	Gas Generating Reaction, Reaction Stoichiometry <b>Writing Assignment 3 due</b>
9	4/1	Ideal Gas Relationships
10	4/8*	Calorimetry, Specific Heat
	4/15	<b>Exam</b>
11	4/22	Atomic Spectra <b>Writing Assignment 4 due</b> <b>Notebooks Due</b>
12	4/29	Molecular Modeling with Avogadro

**\*Note that Dr. Crick may be attending a conference with research students from April 8-11. If that is the case, alternate assignments will be provided for the 4/8 laboratory. In other words, you don't get a week off.**

## **Policies and Information**

### **Safety**

All appropriate safety guidelines will be adhered to strictly. Safety goggles must be worn at all times in the laboratory. In addition, the student must dress appropriately. Shoes that entirely cover your feet and clothing that entirely covers your torso and legs must be worn. Shoes with high heels, shorts, dresses/skirts, and long, flowing clothing will not be permitted in the lab. No exceptions will be permitted. Consult with the instructor if you have any questions. Students who do not follow safety instructions may have points deducted, be asked to leave without the possibility of make up or be dropped from the course.

### **Electronic Device Policy**

Use of cell phones for non-class functions during class is disruptive and is not permitted. Students may use laptop or tablet computers to take notes during class. This privilege may be suspended at any time if it becomes disruptive to the class. During examinations, all electronic devices except non-programmable calculators must be inaccessible. Anyone with an accessible cell phone during exams will be assumed to be engaging in academic dishonesty. See the Academic Dishonesty section for consequences.

### **Recording Policy**

Audio recording of lectures is permitted as long as it does not disrupt the class. Video recording is not permitted.

### **Accessibility/Accommodations**

Concord University is committed to responding to the needs of students with disabilities as defined by the Americans with Disabilities Act. Please inform your instructor at the beginning of the class semester if you have a disability and are requesting accommodations. It is your responsibility to self-disclose that you are requesting accommodations. The University and the instructor will provide you with a reasonable accommodation. You should register with CU's Disability Services Office, located in the Athens campus Jean and Jerry Beasley Student Center, Bottom Floor, across from the Campus Post Office. The Disability Services Office phone is 304-384-6086 or you can email the Director, Nancy Ellison, at [nellison@concord.edu](mailto:nellison@concord.edu) for assistance.



## Academic Dishonesty

Refer to the [Concord University Catalog](#) for definitions and consequences of academic dishonesty.

**The instructor has a zero tolerance policy for academic dishonesty. Students guilty of academic dishonesty will receive an F for the course and dismissal from the University may be recommended.**

## Concord University Honor Code

A Concord University Honor Code was approved by students, staff, faculty, administration, and the CU Board of Governors. The Code states:

*"As a member of the Concord University Community I will act with honesty and integrity in accordance with our fundamental principles and I will respect myself and others while challenging them to do the same."*

The Honor Code is intended to unite the Concord community behind a culture of honesty, integrity, and civility.

**Your enrollment in this course signifies your agreement to abide by the CU Honor Code.**

## Class/Online Attendance Policy

Regular class attendance is part of a student's academic obligation at Concord. Irregular attendance may affect academic performance adversely and is detrimental to the atmosphere of a class. (See University Catalog Academic Policies and Procedures.) [Concord University Catalog](#).

## Emergency Alert System

In an effort to increase safety and security on our campus, Concord University encourages everyone to register for instant text message alerts. Alerts will only be used for security and safety notices. All students, faculty, and staff are eligible to receive text message alerts on their cell phones or email alerts. Please contact the IT Help Desk for further assistance (304-384-5291).

## Emergency Information

Emergency/courtesy telephones are located at the main entrance of each residence hall and at various other locations on campus. Emergency telephones can be identified by the flashing blue light and will provide the user with a direct link to Public Safety at the press of a button. To report an on-campus emergency, call 304-384-5357 or 911. The Office of Public Safety is located on the

bottom floor of the Rahall Technology Center. For further emergency information go to the [Office of Public Safety](#)

### **Inclement Weather Policy**

As a general policy, the University will remain in normal operations during adverse weather conditions. In the event of severe weather conditions, the following may occur:

- University Closure  
No students or employees are to report.
- Classes Cancelled  
Students do NOT report BUT employees are expected to report to work at their normal time.
- Operating on an Inclement Weather Delay  
Under this schedule, all 8 a.m. classes will start at 10 a.m. Students and faculty will follow the Inclement Weather Schedule. (See [Athens/Beckley Inclement Weather Schedules](#).)

*\*Announcements invoking the late schedule or other options referenced above are aired on area radio and television stations and are sent as text and email messages to those enrolled for this service.*

### **Student Conduct**

In classrooms, online, laboratories, and during any activities that are part of course requirements, students are expected to observe reasonable rules of conduct. Failure to follow safety rules in the laboratory will lead to instructor dismissal from the course.

### **Sexual Harassment & Assault**

Federal law, Title IX, and Concord University policy prohibits discrimination, harassment, and violence based on sex and gender (Including sexual harassment, sexual assault, domestic/dating violence, stalking, sexual exploitation, and retaliation). If you or someone you know has been harassed or assaulted, you can receive confidential counseling support through the Concord University Counseling Center (304-384- 5290). Alleged Violations can be reported non-confidentially to the Concord University Title IX Coordinator at 304-384-6327 or [titleix@concord.edu](mailto:titleix@concord.edu). Reports to Campus Security can be made at (304-384-5357). As an employee at Concord University, I am a mandatory reporter which means I must report any sexual misconduct I am made aware of. This includes verbal or written (such as in an assignment) disclosures of sexual harassment or sexual assault.

### **Technology Services**

Contact the CU Help Desk at extension 5291 from campus or 304-384-5291 off campus. You may also e-mail [cuhelpdesk@concord.edu](mailto:cuhelpdesk@concord.edu).

### **Syllabus Disclaimer**

"This syllabus is subject to change based on the needs of the class. Please check it regularly."