



Chemistry 101: General Chemistry 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 101: General Chemistry I

Section: 20

Credit Hours: 3 credits

Room: Science Hall 300

CRN: 20230

Semester Taught: Spring 2019

Time: MW 5:00-6:15

Prerequisites

MATH 103 (or equivalent proficiency) and ENGL 101. (both may be taken concurrently with CHEM 101).

Co-requisite

CHEM 111

Instructor Information

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

Email: 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

An introductory course designed to give a general knowledge of the principles of chemistry. Must be taken concurrently with CHEM 111. A grade of C or better in CHEM 101 is required to take 200-level and above CHEM courses.

Required Text and Materials

- Chemistry: The Molecular Nature of Matter and Change, 8th edition by Silberberg & Amateis
ISBN: 9781259631757
- Connect Access Card for Chemistry: Molecular Nature of Matter and Change (Silberberg)
ISBN: 9781259916168
- Basic scientific calculator such as a TI-30. Phones, tablets, watches, and other online devices are not permitted during exams.

Course Management System

This course will use Moodle.

Course resources will be available at 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. An American Chemical Society Standardized Exam will be given at the end of the course.

Specific Learning Outcomes

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

- Identify new and current applications for which fundamental chemistry is essential to proper function
- Compare distinct and different elements in the periodic table in order to discuss trends based on their position
- Explain the reactivity of the chemical compounds based on physical property
- Describe the components of atoms and chemical compounds in order to discuss the role of each in reactivity of the compounds
- Analyze intermolecular and intramolecular interactions of the chemical molecules
- Identify chemical bonds and bond strength
- Examine chemical energies of reactions based on theoretical and mathematical models
- Apply qualitative and quantitative analyses for problem solving
- Construct a proper dimensional analysis as a key approach to measurement conversions
- Interpret data based on valid scientific approach
- Apply the principles of atomic and molecular theory, stoichiometry, and thermodynamics
- Justify chemical reactivity in more complex systems based on fundamental chemical concepts

Course Requirements

- Online Homework Assignments (Connect): One to two online assignments will be due each week. Each will consist of 10-30 primarily calculation-based problems. Students will have multiple attempts for each problem, with the highest grade recorded
- Online Homework Assignments (LearnSmart): One to two online assignments will be due each week. These are online assignments that emphasize concepts and allow students to access the online textbook while answering questions.

Instructions for accessing the Connect and LearnSmart assignments will be given in class.

- In-Class Quizzes: 15-20 unannounced quizzes will be given at the beginning of class throughout the semester. Quizzes will be approximately 10 minutes in duration. The three lowest quiz grades will be dropped.

- Exams: Three in-class comprehensive exams will be given at the times listed below.
- Final Exam: A nationally-standardized American Chemical Society comprehensive exam will be given during the scheduled final exam time. If a student's percentile score on the ACS exam is higher than their exam average, the lowest exam grade will be replaced with the final exam grade.

Exam Dates

Exam 1: Wednesday, February 13, 2019

Exam 2: Wednesday, March 27, 2019

Exam 3: Wednesday, April 24, 2019

Final Exam: Wednesday, May 8, 2019 5:00-7:15 PM

Grading Policy and Scale

The student's grade will be determined as follows:

- Online Homework (Connect): 20%
- LearnSmart Assignments: 5%
- In-Class Quizzes: 15%
- Exams: 45%
- Final Exam: 15%

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 for assignments other than online homework. Online homework will have a 2% deduction for each hour late. "Technological difficulties" such as last minute computer failure or inability to access the internet are not acceptable excuses.

Course Timeline

This timeline is tentative and subject to change. Changes will be announced in class and posted to the forum on Moodle. Students should read the indicated sections of the text **before** lecture.

Date	Topic	Text
1/14	Course introduction, Foundational Concepts	1.1-1.3
1/16	Significant figures, accuracy and precision	1.4-1.5
1/21	NO CLASS - MARTIN LUTHER KING, JR. DAY	
1/23	Unit conversions	1.4-1.5
1/28	Elements and atomic theory	2.1-2.4
1/30	Atomic theory and the periodic table	2.5-2.6
2/4	Bonding and names of simple compounds	2.7-2.8
2/6	More compound naming and introduction to mixtures	2.8-2.9
2/11	Review	
2/13	Exam 1	
2/18	The mole, chemical formulas	3.1-3.2
2/20	Chemical Equations	3.3
2/25	Stoichiometry	3.4
2/27	Solutions and precipitation reactions	4.1-4.3
3/4	Acid-base and redox reactions	4.4-4.5
3/6	Reactions and equilibrium	4.6-4.7
3/11	NO CLASS - SPRING BREAK	
3/13	NO CLASS - SPRING BREAK	
3/18	Kinetic molecular theory and the ideal gas law	5.1-5.6
3/20	Foundations of quantum mechanics	7.1-7.3
3/25	The quantum-mechanical model of the atom	7.4
3/27	Exam 2	
4/1	Electron configurations	8.1-8.2
4/3	Trends in atomic properties	8.3-8.4
4/8*	Chemical bonding	9.1-9.3
4/10*	Electronegativity and bond polarity	9.4-9.6
4/15	Lewis structures	10.1
4/17	VSEPR theory	10.2
4/22	Molecular shape and polarity	10.3
4/24	Exam 3	
4/29	Valence bond theory	11.1-11.2
5/1	Molecular orbital theory	11.3
5/8	Final Exam 5:00-7:15	

***Note that Dr. Crick may be attending a conference with research students from April 8-11. If that is the case, alternate online assignments will be given on Moodle.**

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 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. 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.

Syllabus Disclaimer

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