

Cypress College, Fall 2022

Preparation for General Chemistry, CHEM 107C, CRN 13195/13199

Brian D Nguyen

August 22, 2022

Course Hours:

CRN 13199 MW 2:50 PM - 4:55 PM lecture CC310, 1:10 PM - 2:35 PM lab CC314

CRN 13196 TTh 1:45 PM - 3:50 PM lecture CC309

Instructor Contact Information: TBA

Office Hours: TBA

1 Course Description

This course provides a general introduction to the basic concepts, principles and laws of modern chemistry. Topics include a study of atomic theory, molecular structure, chemical reactivity, and the properties of the various phases of matter. Laboratory experiments include both qualitative and quantitative analysis, with an emphasis on proper laboratory techniques. This course applies to the physical science requirement for general education and is not acceptable for credit for students majoring in physical science. CHEM 107C is a recommended preparatory course for students planning to take CHEM 111AC AND CHEM 111BC. No credit if taken after CHEM 111AC. Pass/No Pass/Letter Grade Option

Prerequisite: Completion of MATH 40C, MATH 41C or equivalent.

1.1 Course Objectives

Upon Completion of this course, the student will be able to:

1. Demonstrate understanding of the metric system of units in length, mass and volume and be able to solve problems requiring conversion of units.
2. Demonstrate ability to recognize and use chemical glassware basic to a general chemistry laboratory.
3. Demonstrate knowledge of the names and symbols of 40 common elements, and to provide formulas and names of basic inorganic compounds.

4. Compare and contrast physical and chemical properties, physical and chemical changes.
5. Discuss the subatomic particles of an atom and demonstrate their impact on chemical bonding and reactivity.
6. Classify and balance chemistry reactions.
7. Solve chemical stoichiometric problems using the mole concept and dimensional analysis.
8. Demonstrate knowledge of concentration units and behavior of compounds in solution chemistry.
9. Demonstrate understanding of various phases of matter and their corresponding properties.
10. Demonstrate comprehension of the concept of equilibrium and its effect upon the rate of a reaction.
11. Analyze and interpret experimental data.

1.2 Student Learning Outcomes

1. On a short quiz, successfully solve quantitative problems with a 65% accuracy.
2. Given the names of fundamental compounds and elements, write the symbols and formulas accurately and vice versa with a 65% accuracy.
3. Successfully apply chemical principles to predict properties and reactivities with a 65% accuracy.
4. Students will understand proper chemistry laboratory techniques and safety procedures with a 65% accuracy.

1.3 Required Materials

You may purchase your textbooks online from the Cypress College Online Bookstore at <http://www.cypress.bkstr.com>

- **Lecture Textbook:** Bauer, R. C., Birk, J. P., and Marks, P. S., Introduction to Chemistry, McGraw Hill Companies, Inc., 5th Edition, 2019 ISBN- 9781260832303 Discounted Edition (losse-leaf format) sold at Cypress College Bookstore Hardcopy ISBN13: 9781259911149.
- **Laboratory Textbook:** Hein, M., Custom Laboratory Manual Version A for CHEM107C, John Wiley & Sons, 14th Edition ISBN-9781118975817. The eBook can also be purchased ISBN- 9781119784791, 1119784794. <https://www.vitalsource.com/custom/9781119784791> The custom manual contains excerpts from Foundations of Chemistry in the Laboratory (14th Edition) by Hein, Peisen, Best, and Miner. Copyright: 2013 from John Wiley & Sons, Inc. ISBN13: 9781118288993.
- **Non-graphing, Non-programmable, Scientific Calculator:** A simple calculator with exponential, logarithmic, power, square roots functions in addition to its basic arithmetic capabilities. **Warning:** students will not be allowed to use any type of programmable calculators, phones, PDAs, and personal computers, etc. during quizzes and exams.

- **Metric Ruler:** A simple metric ruler in the centimeter (cm) units with each individual line representing a millimeter (mm).
- **Crayons or Color Pencils:** A set of crayons or color pencils containing 12 basic colors.

2 Important Dates

- The last day to add this class is September 5th.
- The last day to drop this class without getting a “W” or a grade on your permanent record is September 5th.
- Labor Day September 5th
- Veteran’s Day November 11th
- The last day to drop this class with a “W” on your permanent record is November 13th.
- Thanksgiving Holiday November 24-25th
- Final Exam in lecture classes Weds, December 7th 2:50 PM - 4:55 PM or Thursday, December 8th 1:45 PM - 3:50 PM (depending on the class you’re enrolled in)

3 Canvas Login Instructions

This course will use Canvas as the “host”. Quizzes and assignments will be turned in through Canvas.

Canvas and is accessed through this web address: <http://cypresscollege.instructure.com>

NOTE: There is no “www” in the address. This web address is case and space sensitive. You should bookmark this site (or put it in your favorites) for easy access. To login to the course site, you must type in a “username” and “password.” Your username is your student ID number—including the @ sign and all zeroes, for example, @00001234. Your password is the same one that you use to register for classes. If you forgot your password, you may have to reset it.

When you login to the Canvas website, the “dashboard” will open. There you will find the links to your online course(s) which will appear as colored rectangular boxes. Click on the “CHEM 107C Preparation for General Chemistry” course link and you will be taken to the course “Home” page.

3.1 Technical Requirements and Skills

- Computer with a current operating system and a built-in or external camera and microphone
- Current browser (Firefox or Chrome are preferable)
- Stable internet connection
- Basic internet skills (use of browser, searches, uploading/downloading files)
- Scanning Device (a scanner or a tablet/smart phone with camera and scanner app).
- Access to a printer is highly recommended

4 Optional Classroom Health Measures

- Wear a mask over your nose and mouth
- Practice social distancing from classmates and instructors whenever possible
- Clean and disinfect your desk or lab station when you arrive

**Note health measures may change per CDC guidelines.

5 Attendance Policy

Attendance to lecture and laboratory is required for the entire designated time. Any student who has more than three absences will be dropped from the class or receive an F. For every three days of being late to class or leaving early, 10 points will be deducted from the student's final grade, and will be counted as the equivalent of one absence.

6 Academic Honesty Policy

All students should read the Academic Honesty Policy in the Cypress College catalog and be certain that they fully understand it (see the instructor for further clarification if necessary). Understanding the policy is essential, as academic dishonesty is a serious offence that carries heavy penalties. Academic dishonesty may result in an "F" on an assignment and referral to the dean.

7 Academic Accommodations: Disability Support Services (DSS)

Cypress College is committed to equitable access to educational opportunity. Students with disabilities who may need an accommodation to fully participate in this class should contact Disability Support Services (DSS) at 714.484.7104 or dss-students@cypresscollege.edu.

If you have any other special needs for accessibility or any other issues, (including, but not limited to, medical issues, physical/mental difficulties, pregnancy), please discuss this with the instructor as soon as possible so that appropriate accommodations can be made in timely manner.

8 Sexual Harassment/Discrimination Policy

Students who believe they have been subjected to unlawful discrimination, including sexual harassment, or who seek information regarding the District's Unlawful Discrimination Policy, should contact the Office of the District Director of Human Resources at (714) 808-4818.

9 Message from SEM Counselors

Do you have a comprehensive Student Educational Plan (SEP)? If not, please make an appointment to speak with your academic counselor beginning the third week of the semester. Counseling

appointments are available from the third week through the thirteenth week of each semester.

10 Grading Policy

EXAMS	Three exams will be given, each worth 125 points. Each exam will consist of a combination of multiple choice, short answer, and word problems. If you cannot attend a scheduled exam, you must notify me before the day of the exam. Make-up exams must be taken within one week of the missed exam or zero credit will be given.	375
QUIZZES	15 weekly quizzes worth 5 points each will be given over the course of the semester. Quizzes will include questions from lecture, lab, and assigned readings. Quizzes are assigned for each weekly module. Quizzes will consist of multiple choice, multiple answer, or fill in the blank. Quizzes are given through Canvas and are due on Mons CRN 13199/Tues CRN 13196 at 11:59PM. You are only allowed to view one question at a time and given one attempt.	75
HOMEWORK	You will be expected to complete all assigned homework problems each week for 10 points. Because exam questions will be based on homework problems, it is in your best interest to diligently complete all assignments. Be sure to write clearly, show calculations, and complete the problems in numerical order. Homework will be due on Mons CRN 13199/ Tues CRN 13196 at 11:59PM. Homework will be scanned and uploaded to Canvas as one pdf file.	150
LABORATORY	<p>The lab will be graded on the quality and accuracy of your write-ups, and should reflect appropriate preparedness, technique, safety, and cleanliness for each lab assignment.</p> <ul style="list-style-type: none"> • 15 Laboratory Reports and/or Handouts and Review (10 points each) • Lab Practicum (50 points) • Points will be deducted for leaving a messy lab drawer. • Points will be deducted for not wearing goggles. Lab reports will be due on Mons CRN 13199/Tues CRN 13196 at 11:59PM. • Lab report pages as well as “Questions and Problems” from the lab manual will be scanned and uploaded to Canvas as one pdf file. • Note: students must earn 70% of the laboratory points to pass the course. 	200
EXTRA CREDIT FINAL EXAM	Extra credit may be given out. Keep a lookout for class announcements. A comprehensive final will be administered during finals week (200 points).	200
TOTAL		1000

11 Chem 107C Calendar

	Lecture Chapter	Laboratory Experiment	Exams
Week: 1 (8/22)	Chapter 1 Math Toolbox	Math Tool Box Handouts	
Week: 2 (8/29)	Chapter 1 Matter and Energy	Lab Safety/Equipment Lab Safety Video and Quiz	
Week: 3 M Holiday (9/5)	Chapter 2 Atoms, Ions, and the Periodic Table	Laboratory Techniques *Need the Lab Manual	
Week: 4 (9/12)	Chapter 3 Chemical Compounds	Nomenclature (exercises 3, 4, 5)	
Week: 5 M-holiday (9/19)	Chapter 4 Chemical Composition	Measurements	
Week: 6 (9/26)	Chapters 4/5 Chemical Composition Chemical Reactions and Equations	Water in Hydrates	Exam #1
Week: 7 (10/3)	Chapter 5 Chemical Reactions and Equations	Double Displacement Reactions	
Week: 8 (10/10)	Chapter 6 Quantities in Chemical Reactions	Single Displacement Reactions Electrolytes Demo (Part A)	
Week: 9 (10/17)	Chapters 6/7 Quantities in Chemical Reactions Electron Structure of the Atom	Identification of Selected Anions	
Week: 10 (10/24)	Chapters 7/8 Electron Structure of the Atom Chemical Bonding	Quantitative Preparation of Potassium Chloride	
Week: 11 (10/31)	Chapter 8 Chemical Bonding	Electromagnetic Energy and Spectroscopy	Exam #2
Week: 12 (11/7)	Chapter 9 The Gaseous State	Lewis Structures and Molecular Models	
Week: 13 (11/14)	Chapter 10 The Liquid and Solid States	Boyle's Law	
Week: 14 Th Holiday (11/21)	Chapter 11 Solutions	Titration	
Week: 15 (11/28)	Chapter 12/13 Reaction Rates and Chemical Equilibrium Acids and Bases	Lab Practicum	
Week: 16 (12/5)	Chapter 14/15 Oxidation-Reduction Reactions Nuclear Chemistry	Final Review	Final Exam

12 Academic Honesty (From the Cypress College Catalog)

Students are expected to abide by ethical standards in preparing and presenting material which demonstrates their level of knowledge and which is used to determine grades. Such standards are founded on basic concepts of integrity and honesty. These include, but are not limited to the following areas:

1. Students shall not plagiarize, which is defined as stealing or passing off as one's own ideas or words of another and as using a creative production without crediting the source. The following cases are examples of what constitutes plagiarism:
 - paraphrasing published material without acknowledging the source.
 - making significant use of an idea or a particular arrangement of ideas, e.g., outlines.
 - writing a paper after consulting with persons who provide suitable ideas and incorporating these ideas into the paper without acknowledging the debt.
 - submitting under one's own name, term papers or other reports which have been prepared by others.
2. Students shall not cheat, which is defined as using notes, aids, or the help of other students on tests or exams in ways other than those expressly permitted by the instructor; and as misreporting or altering the data in laboratory or research projects involving the collection of data.
3. Students shall not submit an original paper or project to more than one class without approval from the second instructor. Instructors who do not accept previously submitted papers should so inform the students in the course syllabus.
4. Students shall not furnish materials or information in order to enable another student to plagiarize or cheat.

An instructor who has evidence that an act of academic dishonesty has occurred, after speaking with the student, is obligated to take the following steps:

1. Assign an appropriate academic penalty such as an oral reprimand (as in cases where there is reasonable doubt that the student knew that the action violated the standards of honesty); or assign an "F" on all or part of a particular paper, project, or exam (for example, where there was proof that it was a one-time occurrence). In cases where an "F" was assigned, report the incident to all appropriate personnel. (See Step 3).
2. In cases where the dishonesty was serious, premeditated, or part of an ongoing scheme, request an ad hoc review board made up of at least three faculty from the department or division of the instructor involved. This review board is to be appointed by the Academic Senate President or his/her delegate in consultation with the department coordinator, or if none is in place, with the members of the department. Supply to the review board the documents which are suspect and any other documents completed by the student which might help determine if academic dishonesty occurred. It would then be the responsibility of the review board to determine academic penalties as appropriate.

3. Report to the student involved, to the department coordinator, to the Division Dean, and to the Dean of Counseling and Student Development, the alleged incident of academic dishonesty, including relevant documentation, and recommendations for action that he or she deems appropriate.
4. The appropriate Division Dean shall maintain an academic dishonesty file of all cases of academic dishonesty with the appropriate documentation.
5. Students shall be informed when their names are inserted into the file and provided with copies of any appeals or disciplinary procedures in which they may become involved. The appropriate Division Dean may initiate disciplinary proceedings under Education Code, Article 3, Section 76030-76037; when two or more incidents involving the same student occur, he/she shall do so.
6. Students charged with violations resulting in disciplinary action have the right to appeal the findings to the Petitions Committee under the Rules and Procedures of Due Process.