CHEMISTRY 123: Chemistry for Engineers
Course Syllabus
Fall 2023

Instructor: Prof. Dr. Brian Nguyen
E-mail: briandnguyen2@fullerton.edu
Lecture: MW 5:30pm – 6:45 pm MH 121
Office Hours: Wednesdays 4:00pm - 5:00pm in MH 577 or by appointment
Canvas: https://csufullerton.instructure.com/courses/3394772
Section: 19595, 3 units
Corequisite: MATH 125: Precalculus or MATH 150A: Calculus.

Course Communication: I prefer all communication done via Canvas since my school email receives a lot of information from the Chemistry department and school. Expect a reply within 24-48 hours and if I don't reply, please send a friendly reminder.

Required text: Online ($90): Interactive General Chemistry Media Resources, required for the course.
Optional:

1. **Interactive General Chemistry: Reactions First**, J. White et al. (Macmillan Learning, New York);
2. **CHEMISTRY F/ENGR.STUD.,HYBRID** by BROWN ISBN: 9781285462523, available from Titan bookstore;

Online Homework: To create a homework account using **Achieve**, and pay for the ebook go to:
http://achieve.macmillanlearning.com/
Enter the **access code (purchased online)** and **Course ID**: ycrut5

Course Description: Fundamental concepts of chemistry for engineering students. Atomic structure, periodic table, stoichiometry, states of matter, chemical bonding, new materials, solutions, thermodynamics, reaction rates, equilibrium, electrochemistry, polymers and nuclear reactions.

Student Learning Outcomes (SLOs):
1) To learn basic chemical principles.
2) To be able to apply basic chemical principles to solve real world problems.
3) To understand how and why chemistry is important to many engineering applications.

Grade Evaluation
You will be evaluated in this course based on your ability to complete weekly assignments that meet or exceed expectations. The course will culminate with three 100-point midterm exams and a 150-point final examination that will test your level of mastery of the learning outcomes. Assignments may be completed outside of class. Grading is on a straight percentage, and +/- grading will be used at each end of the grading range: A 85 - 100; B 70-84; C 55-69; D 40-54; F < 40 percent. Here is the summary of the point system for student grades:

- 3 midterm exams 60%
- 1 Final exam 30%
- Homework assignments 10%

- Total 100%

Letter Grades (based on the earned percentage):

A: 90-100; A-: 85-89 *B+*: 80-84; B: 75-79; B-: 70-74

C+: 65-69; C: 60-64; C-: 55-59 *D+*: 50-54; D: 45-49;

D-: 40-44; *F:* < 40

Exams: The final exam will cover all the assigned reading and any material covered in class. Exams will consist of some combination of the following: multiple choice questions, short answer questions, essay questions, and numerical problems. Only pencils, pens, erasers, and a scientific calculator may be used during the exams. **Students who miss the final exam for serious reasons or reasons beyond their control must contact me as soon as possible to set up a date for a make-up midterm or final exam.** If you miss an exam due to illness, personal tragedy or unavoidable emergencies, email your instructor. Your missed exam will be projected by averaging your scores from completed exams (along with the written proof of your emergency, such as doctor's note).

Academic dishonesty: Students who violate university standards of academic integrity (for example, unacceptable exam behavior, plagiarism, unauthorized collaboration, document falsification) are subject to disciplinary sanctions, including failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students and the university, policies on academic integrity are strictly enforced. I expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook.

Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty.

Cheating is the act of obtaining or attempting to obtain credit for work by the use of any dishonest, fraudulent, or unauthorized means. Plagiarism is the act of taking the specific substance of another and offering it as one's own without giving credit to the source. Students found guilty of academic dishonesty will be assigned an appropriate academic penalty and reported to the Judicial Officer on campus. Do remember to keep all assignments, quizzes, and tests returned to you so that any discrepancies can be easily and fairly straightened out. Except in cases of actual error, final grades are permanent. If you need to drop this course, refer to the class schedule for the deadlines and requirements for dropping or withdrawing from courses.

Disabilities

During the first week of classes, inform me of any disabilities or special needs that you have that may require special arrangements related to attending class sessions, carrying out writing assignments, or taking examinations. Students with disabilities **need to document the disability** at the Disabled Students Services office in UH 101. www.fullerton.edu/disabledservices/.

COURSE CONTENT AND TENTATIVE SCHEDULE

Week	TOPIC(S)	ACTIVITIES	READING
1	Science and Measurement		Chapter 1
2	Atoms and the Periodic Table		Chapter 2
3	Compounds and the Mole		Chapter 3
	Chemical Reactions		Chapter 4
4	Stoichiometry		Chapter 5
5	Thermochemistry	**Midterm Exam 1 Weds, September 20th Chapters 1-5**	Chapter 6 + 18
6	Gases		Chapter 7
7	Quantum Model of the Atom		Chapter 8
	Periodicity and Ionic Bonding		Chapter 9
8	Covalent Bonding		Chapter 10
9	Molecular Shape and Bonding Theories	**Midterm Exam 2 Weds, October 18th Chapters 6-10, part 18**	Chapter 11
10	Molecular Shape and Bonding Theories		Chapter 11
11	Liquids and Solids		Chapter 12
	Solutions		Chapter 13
12	Chemical Kinetics		Chapter 14
13	Chemical Equilibrium	**Midterm Exam 3 Weds, November 14th Chapters 11-14**	Chapter 15
14	Acids and Bases		Chapter 16
15	Aqueous Equilibria		Chapter 17
16	Review for Final Exam		
	Cumulative Final Exam	**Final Exam: Weds, December 6th**	