



Fundamentals of Chemistry

CEM131.81

Win 2020

Number of Credits: 4

Days Class Meets: M/W (1/13/2020 - 5/3/2020)

Meeting Times:

Lecture: M/W 12:00 PM - 1:20 PM

Lab: M 1:30 PM - 3:20 PM

Location: Hillsdale Center Rm #11

Instructor: Dr. Irma Nydegger

Office: NA

Contact Phone: NA

Contact Email:

nydeggeirma@jccmi.edu

Office Hours: by appointment

Online: See JetNet

Course Description

Fills requirement for some non-science majors. Provides background for CEM 141 for those with no recent high school chemistry. Fundamental principles of chemistry such as states of matter, simple atomic and molecular structure, and the periodic classification of elements. The study of water emphasizes the properties of solutions and acid-base relations. Course includes a laboratory component.

Prerequisite(s)

ENG085 and MAT031 or Higher

Course Goals

This is a college non-majors laboratory science course. It requires college level reading of significant length and on demand proficiency with basic college mathematics (calculators are allowed). Significant practice outside of class is essential to success and usually requires a minimum of two hours outside of class for every hour in class (for average students). The biggest challenges for most students are the pace of the course and the use of mathematics in a practical sense (word problems).

Course Objectives

The course goals and objectives incorporate specific General Education Outcomes (GEOs) established by the JC Board of Trustees, administration, and faculty. These goals are in concert with four-year colleges

and universities and reflect input from the professional communities we serve. GEOs guarantee students achieve goals necessary for graduation credit, transferability, and professional skills needed in many certification programs. The GEO addressed in this class is GEO 4: Scientific Reasoning.

Textbook

- OpenStax Atoms First Chemistry Text

The text for this course is an abridged version of the OpenStax Atoms First Chemistry text found at <https://openstax.org/details/books/chemistry-atoms-first>, an abridged version of the file will be available on JetNet as a PDF.

Text Book Zero: This course uses OER.

Extras

- Lab Safety Goggles
- Lab Safety Apron
- Closed Toed Shoes for lab
- A Basic Scientific Calculator (the TI calculator from your math class is fine too, but your phone cannot be used as your calculator)

Grading Procedure

Grading is based on the percentage of the total points possible that you earn (calculated to one decimal point). There are a variety of assessments, but NO EXTRA CREDIT, so work hard on each assessment.

Lecture Assessments	Possible Points
• Unit Exams (4*)	300
• Daily Quizzes (23*)	200
• Final Exam	100
Lab Assessments	
• Lab Quiz	26
• Lab Reports (11*)	100

*totals may change due to pedagogic reasons or schedule changes, but the lowest three daily quizzes, lowest exam score and lowest lab report will be dropped.

All exams will be curved to the lower (non-negative) value of either the curve needed to take the class median to 74% or the curve needed to take the top score to 100% (excluding outliers >2 SD away from the median)

Lecture Exams

There will be four (4) in class exams during this course. The highest three (3) grades you receive will be counted towards your final grade. The goal of the in-class exams is to gauge your basic understanding, retention and application of the information discussed in class. You will be allowed one and a half hours for the exams, though typically students complete the exams within 45-55 minutes. It is the assumption that you will be able to not only recall concepts but utilize the information to solve problems presented. The exams will be a combination of the following: multiple-guess, matching, true/false, fill in the blank, problem-solving, diagrams and short answer. Each Unit Exam is worth one hundred (100) points and the highest three (3) are counted towards your final grade. The final exam CANNOT be your lowest score.

Grading Scale

Grade	Percentage
4.0	100.0-90.0
3.5	89.9-85.0
3.0	84.9-80.0
2.5	79.9-75.0
2.0	74.9-70.0
1.5	69.9-65.0
1.0	64.9-60.0
0.5	59.5-55.0
0.0	54.9-0.0

All grades are calculated to the first decimal point

Failure

The following conditions can lead to failure of the course, regardless of the grade. All of these indicate significant deficiencies in outcomes or deficiencies in attendance.

- Failure to achieve a 2.0 grade on all exams in the course.
- Failure to achieve a 2.0 grade on either the Lecture or Lab Assessment groups overall, regardless of the other group grade.
- After the last HQV reporting date, failure to complete two (2) exams, or failure to complete three (3) labs, or failure to complete four (4) daily quizzes.

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism is defined as the failure to give credit for the use of material from outside sources.

Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating is defined as obtaining answers/material from an outside source without authorization.

Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

Course Management

Under extraordinary circumstances, a student can request an Incomplete, to be completed in a timely fashion after the end of the normal term. Incompletes are governed by the JC Policy on Incomplete grades (see [JC Policy page](#) on the JC website) and are only given if a small percentage of work is left incomplete, the student is currently passing the class when they request the incomplete, and there is a reasonable expectation the work can be completed within the next term.

Students that have medical issues during the term should discuss the possibility of a medical withdrawal from the course with the Admissions Office.

Makeup Policy

There are ***no*** make-up laboratories granted in this class due to the nature of work done. Exams are generally not available for make-up, but under extraordinary circumstances, alternative times prior to the original time may be arranged **at the discretion of the instructor**. Note, prior planned travel (i.e. leaving for a vacation early) is NOT considered a legitimate reason for alternative times.

Help

Available learning services or opportunities for students seeking help with their course work. May include information about tutors, learning centers, reserved library materials, open labs, counseling services.

It is important to contact a Center for Student Success professional prior to the start of the semester in order to receive accommodations in a timely manner. While we will make every effort to coordinate accommodations in a timely manner, failure to self-identify prior to the start of the semester may delay notification to instructors and timeliness of acquiring accommodations. Accommodations do not automatically carry over to the next semester.

<https://www.jccmi.edu/center-for-student-success/accommodations-for-students-with-disabilities/>

Calendar

**all dates below are subject to change by the instructor with prior notice, at least one week in the case of major assessments (such as exams).*

WEEK #	DATE	TOPIC	CHAP. READING	LABS AND EXAMS
1	1/13 – 1/15	Essential Ideas and Measurements	1	No lab – Safety Overview
2	1/22	Essential Ideas and Measurements / Atoms, Molecules, and Ions	1/2	No lab – MLK day
3	1/27 – 1/29	Atoms, Molecules, and Ions	2	Lab #1 Density and Graphing
4	2/3 – 2/5	Electronic Structures and Periodic Properties	3.2-3.7	Exam 1 – Chapters 1 & 2 (2/5) Lab #2 Phase Changes and States of Matter
5	2/10 – 2/12	Nuclear Chemistry	20	Lab #3 Emission Spectrum
6	2/17 – 2/19	Chemical Bonding and Geometry	4	Exam 2 – Chapters 3 & 20 (2/19) Lab #4 Radioactivity*
7	2/24 – 2/26	Composition of Substances and Solutions	6	Lab #5 Nomenclature*
8	3/2 – 3/4	Stoichiometry	7	Lab #6 Hydration Number of a Salt
	3/9 – 3/15	Spring Break (No classes)		No Lab
9	3/16 – 3/18	Gases	8.1-8.3	Exam 3 – Chapters 4,6, & 7 (3/18) Lab #7 Chemical Reactions
10	3/23 – 3/25	Thermochemistry	9.1-9.2	Lab #8 Hardness of Water
11	3/30 – 4/1	Liquids and Solids	10.1-10.3	Lab #9 Molar Mass of Butane
12	4/6 – 4/8	Solutions and Colloids	11.1-11.3	Lab #10 Specific Heat of a Metal
13	4/13 – 4/16	Equilibria	13.1-13.2	Exam 4 – Chapters 8-11 (4/16) Lab #11 Titration of Acids and Bases make up week
14	4/20 – 4/22	Acids and Bases	14.1-14.3	Make up Week
15	4/27 – 4/29	Finals Week		Final Exam (4/29) No lab due to Finals Week

*These labs are considered for floats, labs that can be replaced with other wet labs or can be transitioned to out-of-lab exercises to account for missed days (snow days, instructor absence, etc.)

Student Responsibilities

Regular attendance and participation is required for successful completion. This class will also require considerable out of classroom study, reading, and practice (2-3 hrs of work for every lecture hour). There are **no** extra-credit assignments.

Attendance Policy

In compliance with Federal Title IV funding requirements, as well as college initiatives, reporting of student participation in classes will occur at three designated times each semester. Instructors will assign one of three non-transcribed letter symbols to each student during each reporting period (see below). Students identified as no longer participating will be dropped or administratively withdrawn from the class, and students identified as needing academic assistance will be contacted.

Participation/Progress

- Daily attendance will be recorded. If you stop attending more than two classes in a row, you will be dropped from the class by the instructor.

Caveat

All policies above are subject to change, with notice, by the instructor for reasons the instructor deems necessary (pedagogic issues, school closings, illness of the instructor, etc.).