



Fundamentals of Chemistry

CEM131.04

Fall 2018

Contact and Course Information

Number of Credits: 4

Instructor: David Pierce, MS

Lecture Times: Tues and Thurs 6:00 – 7:30 PM

Email: piercedavids@jccmi.edu

Lab Times: Tues 7:30 – 9:30 PM

Office hours: By email only

Classroom: McDivitt 233

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 text is available in a digital format. Please see the links posted on our class Jet Net site. This text is available to rent or purchase in digital format through the JC Bookstore.*

Extras

- Lab Safety Goggles
- Lab Safety Apron
- Closed Toed Shoes for lab (You cannot enter the lab in open toed shoes!!!!!!!)
- 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. There are a variety of assessments, but NO EXTRA CREDIT, so work hard on each assessment.

Lecture Assessments	Metric	total pts	Value
<ul style="list-style-type: none">• Unit Exams (3)	4 exams are schedule (drop the lowest)	300	42%
<ul style="list-style-type: none">• Quizzes and HW	Take home and in class)	200	28%
<ul style="list-style-type: none">• Final Exam	ACS, comprehensive	100	14%
Lab Assessments			
<ul style="list-style-type: none">• Lab Reports (12*)	12 labs are scheduled (drop one lab)	110	16%

*totals may change due to pedagogic reasons or schedule changes, but the lowest three daily quizzes 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)

Grading Scale

GPA	GRADE RANGE
4.0	90.0-100%
3.5	85.0-89.9%
3.0	80.0-84.9%
2.5	75.0-79.9%
2.0	70.0-74.9%
1.5	65.0-69.9%
1.0	60.0-64.9%
0.5	55.0-59.9%
0.0	0-54.9%

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.

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 as 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.	LABS AND EXAMS
1	9/4/18	Essential Ideas and Measurements	1	<u>No lab due to Labor Day</u>
2	9/11/18	Atoms, Molecules, and Ions	1/2	Lab #1: Density and Graphing
3	9/18/18	Atoms, Molecules, and Ions	2	<u>No lab due to Convocation</u>
4	9/25/18	Electronic Structures and Periodic Properties	3.2-3.7	Lab #2: Phase change Exam 1 – Chpts 1 & 2 (Th: 9/27)
5	10/2/18	Nuclear Chemistry	20	Lab #3: Emission spectra
6	10/9/18	Nuclear Chemistry	20	Lab #4: TLC Exam 2 – Chpts 3 & 20 (Th: 10/11)
7	10/16/18	Chemical Bonding and Geometry	4	Lab #5: Molecular Geometry
8	10/23/18	Composition of Substances and Solutions	6	Lab #6: Chem rxns + equations
9	10/30/18	Stoichiometry	7	Lab #7: Hydration of a salt
10	11/6/18	Gases	8.1-8.3	Lab #8: Molar mass of butane Exam 3 – Chpts 4,6, & 7 (Th: 11/8)
11	11/13/18	Thermochemistry	9.1-9.2	Lab #9: Specific heat of a metal
12	11/20/18	Liquids and Solids	10.1-10.3	No Lab Thanksgiving Week
13	11/27/18	Solutions and Colloids	11.1-11.3	Lab #10: Hardness of water
14	12/4/18	Equilibria	13.1-13.2	Lab #11: Kinetics Exam 4 – Chapters 8-11 (Th: 12/6)
15	12/11/18	Acids and Bases	14.1-14.3	Lab #12: Titration of acids and bases
16	12/18/18	Finals Week*	-	Final Exam No lab due to Finals Week

Important Dates: Fall 2018

DATE	EVENT
SEPT. 4, 2018	DAY AND EVENING CLASSES BEGIN
SEPT. 4 – DEC. 20, 2018	SEMESTER DATES
SEPT. 18, 2018	IN-SERVICE DAY. NO CLASSES
OCT. 5, 2018	PATHWAY SHOWCASES DAY. NO CLASSES
NOV. 21 – 25, 2018	THANKSGIVING BREAK. NO CLASSES
DEC. 20, 2018	END OF FALL SEMESTER
DEC. 22, 2018	GRADES DUE

Student Responsibilities

Regular attendance and participation is required for successful completion. This class will also require considerable out of classroom study, reading, and practice. 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 Symbols

- H – The student is not doing acceptable work and needs **H**elp to be successful.
- Q – The student has not participated and the instructor believes they have unofficially withdrawn (**Q**uit). These students will be dropped/withdrawn from the class.
- V – The instructor **V**erifies that the student is participating and doing acceptable work.

Caveat

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

Reasons for Receiving a Q or H in the HQV System

There are various reasons why I might assign a grade of 'H' during an HQV entry. The most common is that you are attending and participating but need some extra help in the course. The other common

reason is that you are doing okay but I see signs that your trajectory in the course is headed downhill (slumping performance, absences, poor lab write-ups).

The reasons for a Q are straight forward.

- You fail to show for the first week of class and do not contact me.
- You fail to attend for five class sessions with explanation offered to me.
- You fail to attend three laboratories
- You fail to take two exams.

If any of these conditions are met before an HQV point you will receive a Q and be dropped from the course (in addition, you will not be reinstated, which I must sign off on). If you meet a condition after the last HQV date you will automatically fail the course with a grade of 0.0 for failure to complete the course.

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 the full lecture period for your exam. 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 I count the highest three (3) towards your final grade.

Quizzes and homework

Quizzes can be announced, unannounced, or take-home assignments (ie, homework). This includes any other assignments you may receive, whether posted or given in class. Any material or concepts from homework, assignments, or quizzes may be included in the exams. Homework, quizzes, or assignments are expected to be turned in on-time. Late assignments will not be graded. The total of all quizzes, homework, or assignments will count toward 10% of your total grade.

Lab Reports

There are 12 Lab Reports, each covering a day's activity in the lab. The lab reports will allow me to assess both your understanding of the material and your technical ability in the lab. The reports will be graded for correctness and completeness. Each Lab Report is worth ten (10) points and all but the lowest will count towards your final grade.