



## General Chemistry I

CEM 141-I50 and I51

SP 2020

**Number of Credits:** 5

**Contact Email:** ottmark@jccmi.edu

**Class ONLINE only**

**Office Hours:** M,T,W,R,F 9a-12p  
or by appointment

**Instructor:** Dr. Mark Ott

**Online Reference:** 141.docott.com

**Contact Phone:** 734-408-1377

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### Course Description

This course is required for most sciences, engineering, and pre-professional health majors. Students who are required to take organic chemistry for their major should enroll in CEM 141 during their first semester. Topics include atomic and molecular structure, periodicity, chemical bonding, states of matter, kinetic theory and stoichiometry. Prerequisite(s) MTH 120 and ENG 085 or pre-reqv. Recent chemistry (HS or CEM 131) success recommended

### Course Objectives

Students successfully completing this course should be able to:

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 GEOs and course objectives addressed in this class include the following:

This course satisfies GEO #4, [Demonstrate Scientific Reasoning](#)

Students successfully completing this course should be able to:

1. Understand atomic structure and how number and location and number of subatomic species dictate atomic reactivity, size and energies.
2. Correctly do unit conversion problems including compound units and metric prefixes.
3. Understand fundamental of covalent and ionic bonding.
4. Draw Lewis structures of simple molecular compounds and predict shape and dipoles of said compounds.

5. Understand basic gas laws and relationships between measured properties of pure gases and mixtures.
6. Recognize fundamental aqueous phase chemical reactions including predicting of reaction products.
7. Perform simple stoichiometric calculations of simple chemical reactions.
8. Understand practical use of thermodynamic reactions as well as associated calculations.
9. Learn and practice good laboratory technique fundamental to the chemical sciences.

## Textbook

- [Openstax: Chemistry](#)

**Text Book Zero!** This text is available in a digital format. Please see the links posted on our course webpage.

## Extra Requirements

Course pack from JC bookstore

## Grading Procedure

Grades will be posted on the course JetNet page. It is the student's responsibility to periodically check the accuracy of the posted scores. *1 week after a particular assignment grade is posted, they cannot be changed, so make sure you check often!*

<b>Assignments</b>		
3 exams = 300		
~40 Quizzes 10 pts per = 400		
~13 lab assignments @ 15 pts = 195 ish		
Total Points Possible = <b>895ish</b>		

### Assessments:

**Everything is open note.** While you might think that will make the assessment easy, since you can look in your notes while you take the quizzes/exams, they are of a high enough difficulty, that if you have not practiced/studied the material you likely will not have enough time to complete it. Each quiz/exam has a hard time limit that is *not extended*.

### Quizzes

Each section of the course pack has a quiz (found in JetNet) that is worth 10 points. These questions cover material in that section and can be short answer, calculations, multiple choice, essay, depending on the nature of the material.

### Exams

Exam formats may include multiple choice, matching, fill-in, short answer, essay, application, and problem solving. Exams will be 100 points each. There is no final exam, but concepts build in this course, so mastery of early material will be important for later content instruction and testing.

### Labs

Labs (since this is completely online) are a little different than a traditional class. The labs will be 'virtual',

with some using the Beyond Labz application that you will need to download. More information will be given in the JetNet repository.

### **Schedule:**

The course schedule is listed at the end of this syllabus, but can change, depending on circumstances. The most up-to-date schedule can be found at [141.docott.com](http://141.docott.com). For each lecture section, labs, and exams are listed a 'due date'. You can (and are encouraged to) work ahead. What is listed in the schedule is the last day (time is always 11:59pm) you can submit the material. **Late work is not accepted.**

### **Grading Scale**

**Your final grade will be based on the following percentages.**

4.0 : >90.00%    3.5 : 85.00 – 89.99    3.0 : 80.00 – 84.99    2.5 : 75.00 – 79.99  
2.0 : 70.00 – 74.99    1.5 : 65.00 – 69.99    1.0 : 60.00 – 64.99

### **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

## Accessibility

Jackson College understands that cultivating a broadly diverse community is crucial to our educational mission and to our foundational commitment to leadership and service. Jackson College is fully committed to ensuring our courses are accessible to everyone including those with disabilities. We are currently working to increase accessibility and usability of our course materials in order to meet or exceed the requirements of Section 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1991 and Web Content Accessibility Guidelines (WCAG) 2.0. For more information about Jackson College's efforts to ensure accessibility please visit the [Jackson College accessibility web page](#).

If you have an accessibility need in any of our classes please e-mail the Center for Student Success at [JCCSS@jccmi.edu](mailto:JCCSS@jccmi.edu) or visit the [Center for Student Success web page](#).

At the Center for Student Success (CSS), we are committed to providing all students the opportunity to achieve academic success by providing a variety of support services free of charge to Jackson College students. This includes, but is not limited to, peer and faculty tutoring, mental health referral, temporary assistance with transportation, various workshops/seminars, and the TRIO program.

In addition, the CSS staff is committed to adapting the College's general services to meet the individual needs of otherwise qualified students with disabilities, for the purpose of providing equal access to all programs and facilities.

## Attendance- Participation Policy

For online sections:

Just as in a traditional classroom course, regular class participation and keeping up on the reading and assignments is strongly correlated with survival in college. It is my recommendation that you plan to do your assignments and take your exams BEFORE the last day they are due. If problems occur, there is time to fix them before the deadline.

In compliance with Federal Title IV funding requirements, as well as college initiatives, I will be monitoring student participation on a regular basis and officially reporting student activity throughout the term to assure compliance with college policy and federal regulations. It is imperative that you log in to the course and actively participate *within the first couple days of the term* to validate your enrollment in the course. After that, not actively participating in class may result in you being withdrawn from the course. Being withdrawn from a course can have an impact on financial aid, billing, athletic eligibility, and housing status. As a college student you are responsible for how your participation impacts your academic progress; the accountability lies with you.

## Course management

### Attendance

Keeping up on your work is critical. The material is presented in a timely fashion such that if you work a little bit each day, you can get through it easily. If you miss more than 4 individual assignments (section quiz, lab, or exam) you will be considered absent and dropped from the class.

### **Being Dropped from Class:**

JC faculty are required to drop students from classes if they are not participating. You may be dropped from this class if you miss more than 4 individual assignments (section quiz, lab, or exam). After the drop date, a student missing sufficient days will receive a 0.0 for the course.

Students own the responsibility of the effect of being dropped. Be aware that being dropped from the class may affect financial aid or housing status. If you are dropped, the drop status will **NOT** be changed due to the impact on financial aid, housing status, etc.

### **Incompletes:**

Incompletes will only be issued if the student and is unable to complete the course due to extenuating circumstances. In order to receive an incomplete the student must have completed a vast majority (over 90%) of the course and have been earning a minimum of a 2.0 at the time of the request. If a grade of incomplete is issued all grades/scores earned to that date will be used in calculated the course grade.

Students that have medical issues or extreme family hardships such as a death in the family during the term should discuss the possibility of a medical withdrawal from the course with the Admissions Office.

### **Communication:**

Students are expected to check their JC email on a regular basis or have the JC email forwarded to another address. However, for purposes of this class, I will only respond to emails from the JC email as I am unable to verify other addresses. You should also sign up for Nixle notifications so you can get notifications in case the College is shut down.

### **Grievances:**

If you have a concern about any aspect of the course it is your responsibility to bring it to the instructor's attention. This is the first step of handling any academic concern. Academic complaints need to be handled by having a scheduled meeting with the instructor.

## **Help**

**Study Hints:** There is a nice webpage on the JCC Science department page [http://www.jccmi.edu/Departments/Science/How\\_To\\_Study\\_Science/](http://www.jccmi.edu/Departments/Science/How_To_Study_Science/) or <http://tinyurl.com/j1gp> with study hints and how to be successful in this and other science classes. It is worth your time to peruse it sooner rather than later.

**Tutors:** Tutors (plus additional services for academic success) can be accessed by calling 796-8415 or by stopping by the Center for Student Success, Bert Walker Hall Room 125.

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/>

### **Academic Advising**

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. Please e-mail [JCCSS@jccmi.edu](mailto:JCCSS@jccmi.edu) or visit the [Accommodations for Students with Disabilities](#) web page

### **Calendar**

<b>Course Introduction</b>		
<b>M 6/8</b>		
	1.1	<a href="#">Basic Chemistry Definitions (SC)</a>
<b>T 6/9</b>	1.2a	<a href="#">Units and numbers</a>
	1.2b	<a href="#">Significant Figures (SC)</a>
	1.3a	<a href="#">Unit conversion (SC)</a>
	1.3b	<a href="#">Density (SC)</a>
<b>W 6/10</b>	LAB	<a href="#">Data Manipulation Lab</a>
<b>R 6/11</b>	1.4a	<a href="#">Energy and Enthalpy</a>
	1.4b	<a href="#">atomic structure intro (sc)</a>
<b>F 6/12</b>	LAB	<a href="#">BL- Rutherford and Alpha/Beta Lab</a>
<b>M 6/15</b>	1.5a	<a href="#">Atomic Mass/Symbols (sc)</a>
	1.5b	<a href="#">Diatomic Species and Ions (sc)</a>

	1.6	<a href="#">Waves and Quantized Energy (sc)</a>
<b>T 7/16</b>	1.7a	<a href="#">Line Spectra (SC)</a>
	1.7b	<a href="#">Bohr's H Atom(SC)</a>
	1.8a	<a href="#">Quantum numbers Intro (SC)</a>
	1.8b	<a href="#">Quantum Numbers (SC)</a>
	1.8c	<a href="#">Electronic Configuration (SC)</a>
<b>W 6/17</b>	LAB	<a href="#">BL- Rydberg Lab</a>
<b>R 6/18</b>	LAB	Emission Spectra Lab
<b>F 6/19</b>	1.9a	<a href="#">Periodic Table Intro &amp; Zeff (SC)</a>
	1.9b	<a href="#">Periodic Trends: Atomic Radius (SC)</a>
	1.10a	<a href="#">Ionization Energy (SC)</a>
	1.10b	<a href="#">Electron Affinity (SC)</a>
<b>M 6/22</b>		<b>Exam 1</b>
<b>T 6/23</b>	2.1a	<a href="#">Introduction to Gases (sc)</a>
	2.1b	<a href="#">Ideal Gas law (sc)</a>
	2.2	<a href="#">Gas Law Calculations (SC)</a>
<b>W 6/24</b>	LAB	<b>R determination Lab</b>
<b>R 6/25</b>	2.3a	<a href="#">Gas Mixtures and Daltons Law (sc)</a>
	2.3b	<a href="#">Van Der Waals eqn (sc)</a>
	2.4	<b>Kinetic Molecular Theory</b>
<b>F 6/26</b>	LAB	BL- Daltons Law Lab

<b>M 6/29</b>	2.5	<a href="#">Molecules Introduction</a>
	2.5a	<a href="#">naming simple compounds pt1 (sc)</a>
	2.5b/2.6a	<a href="#">Naming compounds pt 2 (sc)</a>
	2.6b	<a href="#">Molecular Weight and Mass Percent (sc)</a>
	2.6c	<a href="#">Empirical and Molecular Formula Determination(sc)</a>
<b>T 6/30</b>	2.7	<b>Bonding Introduction (sc)</b>
<b>W 7/1</b>	Lab	<b>Zinc Iodide Lab</b>
<b>R 76/2</b>	Lab	<b>Sugar in Soda Lab</b>
<b>F 7/3</b>	2.8	<a href="#">Electronegativity and Bond Properties (sc)</a>
<b>M 7/6</b>	2.9a	<a href="#">Drawing Lewis Structures(SC)</a>
	2.9b	<b>Resonance (SC)</b>
	2.10a	<a href="#">formal charge (SC)</a>
	2.10b	<a href="#">Octet Rule exceptions(SC)</a>
<b>T 7/7</b>		<b>Exam 2</b>
<b>W 7/8</b>	LAB	Spectroscopy Virtual Lab
<b>R 7/9</b>	3.1	<a href="#">Electron Domain Geometry (SC)</a>
	3.2a	<a href="#">Valence Bond Theory, Hybridization (SCnot Ott)</a>
	3.2b	multiple covalent bonds (NO screencast)
<b>F 7/10</b>	3.3a	<a href="#">Molecular Geometry (SC not Ott)</a>
	3.3b	<a href="#">Dipole moment (SC)</a>
<b>M 7/13</b>	LAB	Model Lab

	3.4a	<a href="#">Chemical Equations: Balancing (SC)</a>
	3.4b	<a href="#">Chemical Reaction Types (SC)</a>
	3.5a	<a href="#">Introduction to Aqueous Solutions(SC)</a>
	3.5b	<a href="#">Solubility Rules and Precipitation Reactions (SC)</a>
<b>W 7/15</b>	LAB	Gravimetric Analysis of Arsenic Lab
<b>R 7/16</b>	3.6a	<a href="#">Acid base Neutralization (SC)</a>
	3.6b	<a href="#">REDOX rxns (SC)</a>
	3.7a	<a href="#">Stoichiometry (SC)</a>
	3.7b	<a href="#">Aqueous Stoichiometry (SC)</a>
<b>F 7/17</b>	3.8	<a href="#">Limiting reagents (SC)</a>
<b>M 7/20</b>	3.9a	<a href="#">Energy of reactions (SC)</a>
	3.9b	<a href="#">Enthalpy of formation (SC)</a>
	3.10a	<a href="#">Calorimetry pt 1 (SC)</a>
	3.10b	<a href="#">Calorimetry pt 2 (SC)</a>
	3.10c	<a href="#">Calorimetry pt 3 (SC)</a>
<b>T 7/21</b>	LAB	BL- Calorimetry Lab
<b>W 7/22</b>	LAB	Calorimetry 2 lab
<b>R 7/23</b>		Exam 3

*calendar timelines and assignments are an approximation and could be changed.*

## Important Dates:SP 2020

DATE	EVENT
JUN 8	CLASS BEGIN
JUL26	END OF SEMESTER

### **Caveat**

Some revisions may be necessary during the course. School closes, instructor illness and other procedural improbabilities are possible. If any change is made, student will be duly notified of effective syllabi changes.