



General Chemistry II

CEM 142-I50

SP 2020

Number of Credits: 5

Contact Phone: 734-408-1377

Class ONLINE only

Contact Email: ottmark@jccmi.edu

Location: JM 235

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

Instructor: Dr. Mark Ott

Online Reference: 142.docott.com

Course Description

This course is the second semester of general chemistry and extends material covered in CEM 141. Covered concepts include chemical thermodynamics, electrochemical reactions, reaction kinetics, acid-base theories, nuclear chemistry, and aqueous solutions with emphasis on equilibrium. Experiments include quantitative methods, stoichiometry, colorimetry, and gravimetric analysis. This course transfers to the University of Michigan as CHEM 125. Almost every college or university offers a two semester general chemistry course. It is the student's responsibility to determine transferability in each case. Prerequisite(s) CEM 141

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. Define and explain intermolecular forces and their effects on various measurable properties.
2. Understand solutions in terms of how they are formed and their quantitative and qualitative properties.

3. Perform basic kinetics calculations as well as predict basic reaction mechanisms.
4. Explain equilibrium systems, how they reaction to external stimuli, and associated calculations.
5. Understand qualitative properties and quantitative calculations associated with enthalpy, entropy and Gibbs free energy.
6. Explain simple electrochemical cells and perform associated quantitative calculations.
7. Predict basic nuclear decay reactions and explain fundamental nuclear systems including nuclear weapons and nuclear power

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!*

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

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 142.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 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/ 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 or visit the [Accommodations for Students with Disabilities](#) web page

Calendar

M 6/8	1	Course Introduction
	1.05	Molecular Structure Review (SC)
	1.05	Dipole Moment review (SC)
T 6/9	1.1a	Intermolecular Forces pt 1(SC)
		Intermolecular forces pt2 (SC)
	1.1b	Surface Forces
	1.2a	Vapor Pressure (SC)
	1.2b	Boiling Point; Critical T&P
W 6/10		Data Manipulation Lab
R 6/11		Vapor Pressure Lab
F 6/12	1.3a	Phase Changes (SC)
	1.3b	Phase Diagrams (SC)
M 6/15	1.4a	Bonding in solids (SC)

	1.4b	Alloys (SC)
	1.5a	Solutions & Solvation process(SC)
		Solvation animation
	1.5b	Solubility (SC)
		Sodium Acetate Supersaturated
	1.5c	Henry's Law (SC)
T 6/16	1.6a	Qualitative Analysis (SC)
	1.6b	Units of Concentration (SC)
	1.7a	Vapor Pressure of Solns (SC)
	1.7b	Colligative properties (SC)
W 6/17		Enthalpy of Fusion (BL) Lab
R 6/18		BL Qualitative Analysis (BL) Lab
F 6/19	1.8a	Osmotic P (SC)
	1.8b	Other Mixtures (SC)
M 6/22		EXAM 1
	2.1a/b	Kinetics and Reaction Rates (SC)
T 6/23		
	2.1c/2.2a	Orders of Reaction (SC)
	2.2	Kinetic Molecular/Collision Theory (SC)
W 6/24		T kinetics Lab
R 6/25		Bromate Kinetics
F 6/26	2.3	Reaction mechanisms (SC)

M 6/29	2.4a	Thermodynamics Intro (SC)
	2.4b	Entropy (SC)
	2.5	Gibbs Free Energy (SC) INCLUDE T discussio
T 6/30	2.6	Delta G Calculations (SC)
	2.7	Electrochemistry Intro (SC)
W 7/1		BL - Balance between E and Entropy
R 7/2		BL- Standardization of Permanganate solns
F 7/3	2.8a	Balancing redox Half Rxns (SC)
	2.8b	Cell potentials (SC)
M 7/6		Electrochemical Cells
T 7/7	2.9	Delta G and Electrochemistry (SC)
	2.10a	Nuclear Chem Introduction (SC)
	2.10b	Binding E and Atom making (SC)
W 7/8	2.11a	Nuclear Decay (SC)
	2.11b	Radioactive Dating (SC)
R 7/9		Nuke Movies/paper Lab
F 7/10		Exam 2
M 7/13	3.1a	Equilibrium Intro
	3.1b	Equilibrium Constant, K
T 7/14	3.2	Ksp (SC)
	3.3	Shifts to Equilibria (SC)
W 7/15		Shifting Equilibrium Lab
R 7/16	3.4	Equilibrium Calculations (SC)

	3.5	Acid Base Equilibrium
F 7/17	3.6	Strengths of Acids (vid)
M 7/20	3.7	Acid Base Calculations
	3.8a	Hydrolysis (SC)
	3.8b	Common Ion Effect
T 7/21	3.9	Buffers (SC)
W 7/22		BL Acid/base lab
R 7/23		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.