

# JC Chemistry 141 General Chemistry I

## Summer 2014 5 credits

**Instructor:** Dr. Mark E. Ott Phone: 796-8574 E-mail: 141@docott.com Office: JM 235 or 234B  
Official course website: [docott.com/cem141](http://docott.com/cem141) You are responsible for everything posted there!

### Office hours Or by appointment

The best way to get a hold of me is via E-mail, as I check it several times a day. This is best for more complicated questions.

**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.

**Pre-req:** MTH 120 and ENG 085 or pre-req. Recent chemistry (HS or CEM 131) success recommended

**Required materials:** scientific or graphing calculator ; Web-enabled computer/tablet/laptop ; Course pack from JC bookstore

**Text:** One of the following recommended

Chemistry, by John McMurry 4th Edition or higher

General Chemistry, by Hill and Petrucci 3rd Edition or higher

Chemistry, the Central Science. By Brown, Lemay, etc 9th edition or higher

**Academic Dishonesty:** *I do not allow any cheating. There will be no leniency on this point. Submitting someone else's work as your own is dishonest and unfair to that person. Penalties are severe **including expulsion**, this is your only warning. The official JCC policy can be found at [http://www.jccmi.edu/Administration/deanoffaculty/student\\_resources.html](http://www.jccmi.edu/Administration/deanoffaculty/student_resources.html)*

**Attendance:** No role will be taken in lecture, but attendance is expected. Lab attendance is mandatory. **Missing 2 or more labs will result in an incomplete or failing grade for the course.** The student is responsible for all information presented in lecture and lab.

**Block Quizzes:** This course material is considered difficult, and if you get behind, it is very difficult to catch back up. Therefore, there are no tests per se. There are 20 'block quizzes' (each worth 30 points) which cover 2-3 days worth of lecture material. The schedule for these are available on the course website, and are listed later in this syllabus. Any day there is NOT a block quiz, there will be homework which is due at the beginning of the class. Homework is never accepted after 5 min into the class period. Your lowest block quiz grade will be thrown out. If you miss one due to illness, family emergency, whatever, you will simply use your lowest block quiz for that 'miss'.

**Cell Phone Rule:** When you come to class, leave your cell phone off and in your bag. If you pull out your cell phone during class during lecture/quizzes/anything, you will be asked to leave the room immediately. The second time you are caught with cell phone you will be asked to leave the course.

**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.

**Use-Less-Paper:** In an effort to reduce the number of trees cut down in the world, the amount of 'virgin paper' used in this class will be kept to an absolute minimum. Very few handouts are given in class and lab schedules/information sheets are posted on the course website. The information here should not be printed out if possible.

All quiz answers will be written on ‘recycled’ paper, defined as paper with writing from some previous material on one side and blank on the other. This recycled paper (which you can get from the instructor) is to be used whenever written material is to be turned in. (prelab questions and homework for example)

**Late Work:** You may turn labs up to **72 hours** after it is due. After that, the grade is a zero. Exceptions will be dealt with on a case by case basis and are very rare. **Take home quizzes and other ‘homework’ problems are not taken late.**

**JCC Associate Degree Outcomes addressed in this course:**

**ADO 4: Scientific Reasoning:** Students will acquire the ability to accurately determine the correct data to obtain for each experiment. This data will be manipulated accordingly.

**ADO 7: Critical Thinking:** Given a complex multi-step problem involving more than one major concept students will be able to accurately converge the ideas and work through the problem in a logical pattern.

**Grading:** Approximately every three weeks, grades will be posted on the course blog. It is the student’s responsibility to periodically check the accuracy of the posted scores. *1 week after grades are posted, they can not be changed, so make sure you check often!*

<u>Assignments</u>		
18 Block quizzes @ 30 pts = 540		19 given, 18 counted
~12 1 week lab projects @ 15-25 pts = 220ish ~19 Homework problem sets 5-15 pts per = 195		
Total Points Possible = <b>965ish</b>		

Your final grade will be based on the following percentages, which MAY move down, never up:

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

*Note: The schedule and procedures in this syllabus are subject to change.*

Schedule:

<b><u>Phase 1</u></b>	<b><u>Phase 2</u></b>	<b><u>Phase 3</u></b>
Basic Chemistry Definitions	Naming Simple Compounds	Chemical Equations:Types
Units and Numbers	Molecular Weight and Mass Percent	Stoichiometric Calculations
Significant Figures	Empirical and Molecular Formula Determination	Limiting Reagents
Unit Conversion and Density	Bonding Introduction	Thermodynamics Introduction
Energy and Enthalpy Introduction	Electronegativity and Bond Properties	Calorimetry
Atomic Structure: History and Current Thought	Drawing Lewis Structures	Hess's Law
Symbols and Chemical Mass Math	Resonance and Formal Charge	Enthalpy of Formation
Diatomic Species and Ions	Octet Rule Exceptions	Food and Consumer Energy
Waves and Quantized Energy	Electron Domain Geometry	Introduction to Gases; Pressure
Line Spectra and Bohr's H Atom	Molecular Geometry	The Ideal Gas Law
Quantum Numbers	Dipole Moment	Gas law Calculations
Electronic Configuration	Hybridization	Dalton's Law of Partial Pressures
Periodic Table Introduction & Effective Nuclear Charge	Multiple Covalent Bonds	Kinetic Molecular Theory
Periodic Trends: Atomic Radius	Valence Bond Theory, Molecular Orbital Theory	Van Der Waals' Gas Equation
Periodic Trends: Ionization Energy and Electron Affinity		Introduction to Aqueous Solution Chemistry
Atomic Body Chemistry		Precipitation Reactions and Solubility Rules
Groups of the Periodic Table		Acid-Base Neutralization Reactions
		REDOX reactions
		Aqueous Phase Reactions Calculations
		Humans & Science
		Ozone
		Toxic Compounds and Global Warming