Chemistry 106

Fundamental Chemistry

Fall 2017

Section 2

University of Wisconsin-Stevens Point

Much of Chem 106 is devoted to understanding how molecules interact and react with each other. These topics will help us to understand important real world applications such as the application of salt on roadways.

Course Description and Objectives

Chemistry is the study of matter and the changes it undergoes.

Chemistry is everywhere around us and plays an essential role in nearly every aspect of our daily lives. Chem 106 is a continuation of Chem 105. Therefore you will need to use the knowledge you obtained in Chem 105 and apply it to new concepts in Chem 106, including: gases, thermodynamics, chemical kinetics, and equilibrium.

Upon completion of Chem 106 the successful student will have:
(i) mastered the fundamental chemical principles and theories of chemistry.
(ii) obtained problem solving skills (both qualitative and quantitative).
(iii) developed essential laboratory skills, including effectively following procedures, working safely with chemicals, and keeping a laboratory notebook.
(iv) understood how to effectively master/learn complex subject matter.

Keep an eye out for more specific learning objectives on D2L. Learning objectives will be posted in the study guide for each unit. Study guides will also contain suggested reading, suggested homework problems, and answers to the suggested homework problems.

Your Professor: Dr. Mondloch (or Dr. M)
Office: Sci D145
Phone Extension: (715) 346-3715
Email: jmondloc@uwsp.edu

Office Hours: M 1-2, W 1-2, F 1-2. Additional times available by appointment (please email me).

Course Website: Additional information can be found on the course website in D2L (CHEM 106 Fundamental Chemistry sec 2).

Required Materials:
Lecture textbook Gilbert, T.R.; Kirss, R.V.; Foster, N. Chemistry An Atoms Focused Approach 1st Edition (ISBN: 978-0-393-91234-0).
Laboratory manual Chem 106 laboratory manual for Bowling & Mondloch.
Laboratory notebok Barbakam Lab Notebook.

Class Outline

	Section	Day(s)	Time	Location	Instructor
Lecture	Sec 2	M, W, F	12:00	Sci D101	Mondloch
Discussion	Sec 1	Th	10:00	Sci A112	Mondloch
Discussion	Sec 2	Th	9:00	Sci A112	Mondloch
Discussion	Sec 3	Th	8:00	Sci A112	Mondloch
Lab	Sec 1	M	8:00	Sci C124	Mondloch
Lab	Sec 2	W	8:00	Sci C124	Mondloch
Lab	Sec 3	F	8:00	Sci C124	Mondloch

Assignments & Grading

Four **quizzes** for **200 total points**.

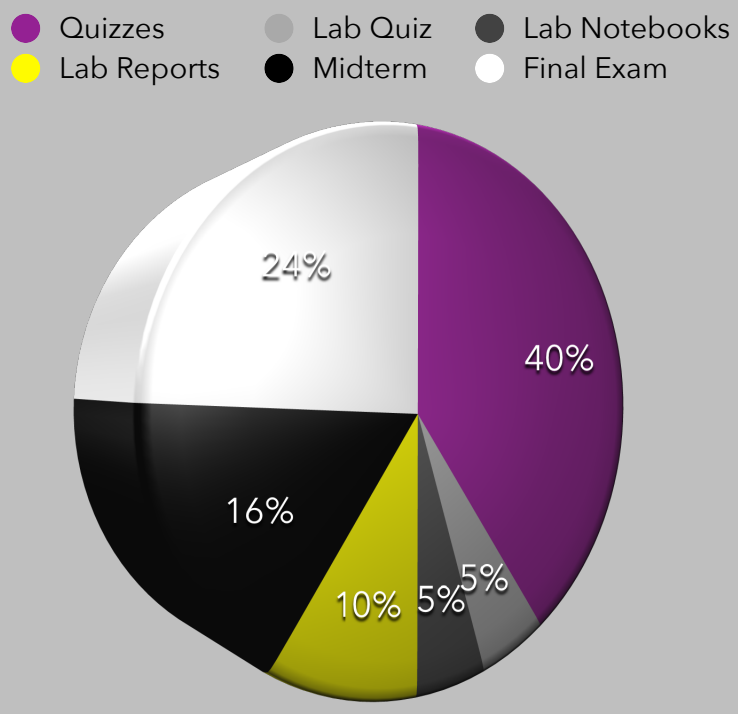
Twelve **lab notebooks** for **30 total points**.

Twelve **lab reports** for **60 total points.**

One **lab quiz** for **30 total points.**

Your **midterm** will be cumulative. **100 total points.** The percentage on your midterm can replace your lowest quiz score for quizzes 1 & 2.

Your **final exam** will be cumulative. **150 total points**. The percentage on your final exam grade can replace your lowest quiz score for quizzes 3 or 4.



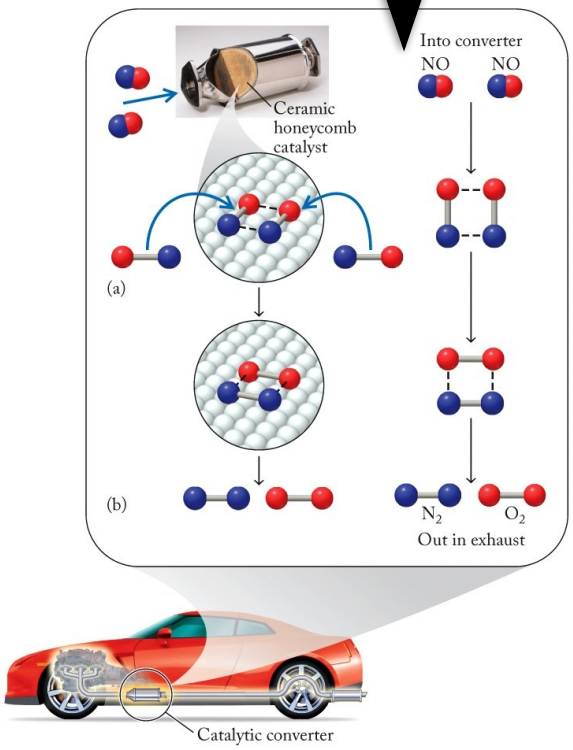
The grading scale is shown below. I will never adjust the grade scale higher. For example, if you obtain 83% in the class, you will receive no less than a B. Please do not ask if I grade on a curve. Your grades will be regularly updated on D2L and it is YOUR responsibility to keep track of them. ***You must pass (>63%) both the lecture and lab portions of the class to receive a passing grade in Chem 106.***

Grades: A (100 – 93%); A- (<93 – 90%); B+ (<90 – 87%); B (<87 – 83%); B- (<83 – 80%); C+ (<80 – 77%); C (<77 – 73%); C- (<73 – 70%); D+ (<70 – 67%); D (<67 – 63%); F (<63%)

Lecture & Discussion

Week	Description	Quizzes/Exams
1 (9/4)	Unit 1	-
2 (9/11)	Unit 1	-
3 (9/18)	Unit 2	**Quiz 1 (9/18)**
4 (9/25)	Unit 3	-
5 (10/2)	Unit 3/Unit 4	**Quiz 2 (10/2)**
6 (10/9)	Unit 4	-
7 (10/16)	Unit 4/Unit 5	**Quiz 3 (10/16)**
8 (10/23)	Unit 5	-
9 (10/30)	Unit 5/Unit 6	**Midterm (10/30)**
10 (11/6)	Unit 6	
11 (11/13)	Unit 6	**Quiz 4 (11/13)**
12 (11/20)	Unit 6	-
13 (11/27)	Unit 7	-
14 (12/4)	Unit 7	**Lab Quiz (12/4)**
15 (12/11)	Review	-
16 (12/18)	Finals	**Final Exam (12/18)**

How does the catalytic converter in your car turn toxic chemicals (*e.g.*, nitrogen monoxide) into less toxic chemicals (*e.g.*, nitrogen or oxygen)?



Our tentative lecture schedule is shown above; it may need to be adjusted depending on the pace of the class.

Quiz and Exam dates will NOT change. See "the fine print" for details regarding policies for makeup quizzes and exams.

Quizzes

Quizzes will be multiple choice and administered during the lecture periods (Sci D101). You should treat the quizzes as short exams. The quizzes may be cumulative in nature, but will focus on the material most recently covered in lecture and discussion.

Lab Quiz

The lab quiz will be multiple choice and administered during the lecture period (Sci D101). The lab quiz will be cumulative and cover the material from lab. Be sure too keep your lab notebook and make sure it is updated. Your notebook will be very useful for the lab quiz.

Midterm & Final Exam

Your midterm and final exam will be multiple choice as well as cumulative. Your midterm will be administered during the lecture period (Sci D101). The final exam will be administered on Monday 12/18 from 10:15—12:15 (Sci D101).

Some other important dates you should keep in mind over the course of the semester (for all of your classes):

Drop Day (no grade on transcript): 9/14
Drop Day (W on transcript): 11/10

In the Lab

Week	Experiment
1 (9/4)	Check In & Safety
2 (9/11)	Synthesis of Aspirin
3 (9/18)	Analysis of Aspirin
4 (9/25)	Molar Mass of a Metal by Gas Evol.
5 (10/2)	Lattice Enthalpy
6 (10/9)	Freezing Point Depression
7 (10/16)	Decomposition of Crystal Violet
8 (10/23)	La Chatelier's Principle
9 (10/30)	Equilibrium Constant
10 (11/6)	Solubility of Potassium Nitrate
11 (11/13)	Strong vs Weak Acid Titration
12 (11/20)	Thanksgiving - **No Labs**
13 (11/27)	Strong vs Weak Acid Titration
14 (12/4)	Buffers
15 (12/11)	Electrochemical Cells
16 (12/18)	Finals Start - **No Labs**

The Details

Your lab instructor may or may not be me. However, every lab performs the same experiments and all labs will be graded by the same person. Questions regarding laboratory grades should be directed to me, NOT your lab instructor.

The lab will NOT be described in detail by your instructor prior to the start of lab. Therefore it is your responsibility to come prepared for lab. You will be required to complete a pre-lab assignment in your lab notebook prior to the start of lab for the week. More details are provided in the Lab Notebook Guidelines document.

For most of the labs you will be working by yourself and turning in your own lab report. Lab reports, which will include the carbon copies from your lab notebook and Post-Lab Follow-Up Questions sheet, will be due the following week at the start of lab. Labs turned in more than one week late will not be graded.

Dress Code

In lab you must wear **goggles** and **closed toe shoes** in the laboratory at all times. Long hair should be tied back. Full length pants are strongly recommended.

Consult your lab instructor for additional details or if other concerns about safety arise.

We can (and will) measure equilibrium constants. Chemical equilibrium plays an important role in the environment as well as many other practical applications.

Make up labs are not typically possible. Please consult with me ahead of time if a conflict arises.

The Fine Print

Attendance

It is in your best interest to attend all lectures, discussions, and labs. Make up exams and labs are NOT allowed except under the following circumstances:

(i) UWSP athletic event. Please get written authorization from your coach.
(ii) Armed forces related training or drills. Please bring me written authorization from your supervising officer.
(iii) Medical emergency. Please bring me authorization from your physician.
(iv) Death in the family. Please bring me some sort of documentation.

Disability Services

There are a number of resources available for students with documented disabilities. A full listing of them can be found at http://www.uwsp.edu/special/disability/. Please be aware that, in order to take advantage of some of the services, you must provide me with an Accommodation Request Form to sign. You must return the form to disability services.

Study Hints

This course will not be easy for most students. Suggested homework problems are designed to alert you to your level of comprehension and encourage you to **seek help** before you are in trouble.

Suggested Study Routine:

(i) Skim relevant text prior to class.
(ii) Take notes in class.
(iii) Keep a running list of potential exam topics.
(iv) Re-write and organize your notes in conjunction with reading.
(v) Work problems daily.
(vi) Identify trouble spots and seek help!

Media Devices

Use of personal multimedia devices during class meetings is not permitted unless you are using it as a note-taking device. This includes cellular phones, iPods, iPads, computer, PDAs, and other similar devices.

An exception may be the use of electronic devices to ask the instructor questions in lecture and discussion sections. Stay tuned for more information.

Tutoring Services

Supplemental instruction offers structured, interactive study sessions designed to let you practice course concepts and review lecture material with your classmates. Your SI leader is a fellow student who has taken the course before and done well.

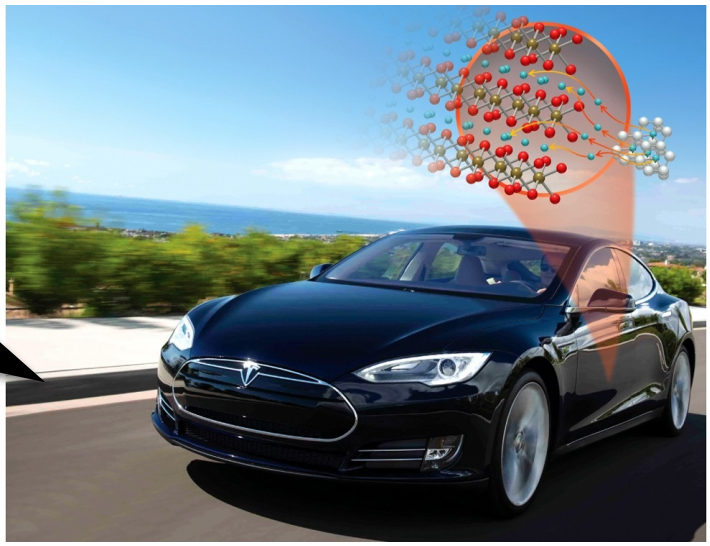
Group Sessions: M, T, Th. 5—6 pm. Sci A112.

Office Hour: T. 1 pm.

Academic Integrity

Academic misconduct is serious and can follow you throughout your entire academic and professional career. You are a student at the University of Wisconsin-Stevens Point and you should know the student academic standard and disciplinary procedures. More information regarding this topic can be found at the following link http://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx. Look at it, read it, and comprehend the decisions you make regarding your academic integrity!

Have you ever wondered how a car can run on batteries? It's simple — electrochemistry! In Chem 106 we will look closely at how batteries operate on the molecular level.



Dr. Mondloch's Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8 am	Chem 106 Lab (02L1)	Chem 299/399	Chem 106 Lab (02L2)	Chem 106 Discussion (02D3)	Chem 106 Lab (02L3)
9 am		Chem 299/399		Chem 106 Discussion (02D2)	
10 am		Chem 299/399		Chem 106 Discussion (02D1)	
11 am	Lecture Prep Please Avoid	Chem 299/399	Lecture Prep Please Avoid	Chem 299/399	Lecture Prep Please Avoid
Noon	Chem 106 Lecture	Chem 299/399	Chem 106 Lecture	Chem 299/399	Chem 106 Lecture
1 pm	Office Hour	Chem 299/399	Office Hour	Chem 299/399	Office Hour
2 pm	R,P,G	Chem 299/399	R,P,G	Chem 299/399	R,P,G
3 pm	R,P,G	Chem 299/399	R,P,G	Chem 299/399	R,P,G
4 pm	R,P,G	Chem 299/399	R,P,G	Chem 299/399	R,P,G

R,P,G stands for Research, Prep, and Grading