

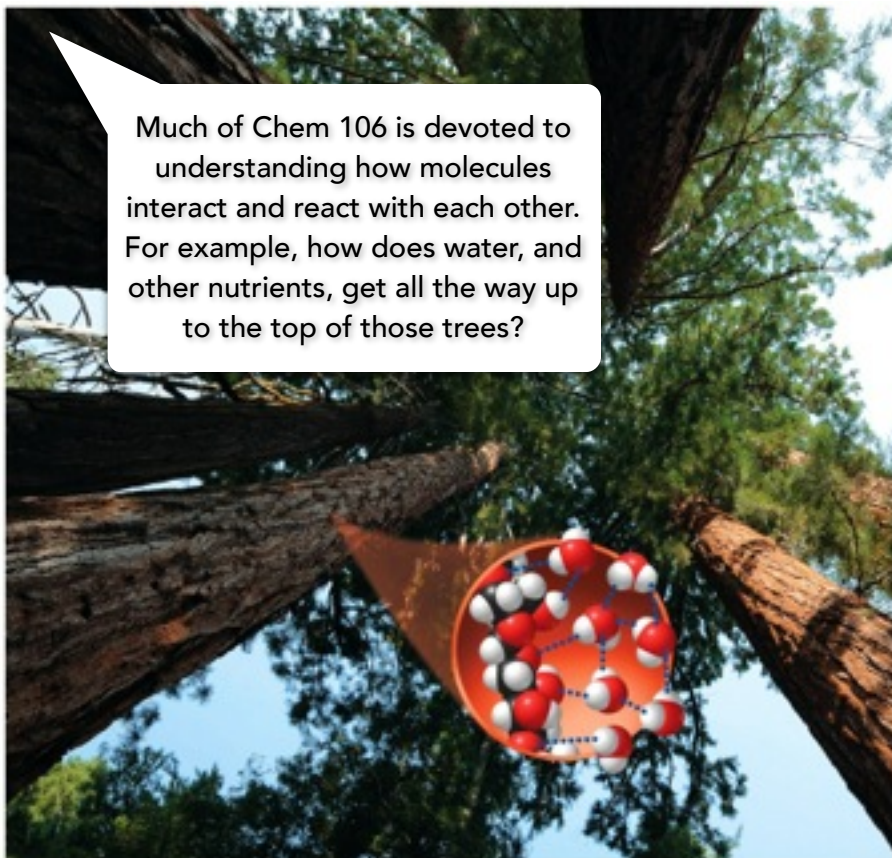
Chemistry 106

Fundamental
Chemistry

Fall 2016

Section 1

University of
Wisconsin-
Stevens Point



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. Since Chem 106 is a continuation of Chem 105, you will need to use the knowledge you obtained from Chem 105 and further apply it to additional fundamental concepts of chemistry, including:

intermolecular forces, thermodynamics, chemical kinetics, and equilibrium.

Upon completion of Chemistry 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 and working safely with chemicals.

(iv) understood how to effectively master/learn complex subject matter.

Keep an eye out for more specific learning objectives posted on D2L in the future. These learning objective documents also contain suggested reading and homework problems for each chapter for the remainder of the semester.

Your Professor: Dr. Mondloch (or Dr. M)

Office: Sci D145

Phone Extension: (715) 346-3715

Email: jmondloc@uwsp.edu

Office Hours: M 11-12, W 1-2, Th 10-11.

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 1–4).

Required Materials:

Lecture textbook Brown, T.E.; Lemay, H.E.; Bursten, B.E.; Murphy, C.; Woodward, P. *Chemistry: The Central Science*, 12th edition, Prentice Hall. Chem 106 **laboratory manual** for D'Acchioli & Mondloch. Chem 106 uses **clickers**. Clickers are available for \$8 in LRC 027.

Class Outline

	Section	Day(s)	Time	Location	Instructor
Lecture	Sec 1	T, Th, F	9:00	Sci A121	Mondloch
Discussion	Sec 1	T	11:00	Sci A110	Mondloch
Discussion	Sec 2	T	12:00	Sci A110	Mondloch
Discussion	Sec 3	T	2:00	Sci A110	Mondloch
Discussion	Sec 4	T	3:00	Sci A110	Mondloch
Lab	Sec 1	M	8:00	Sci C124	Mondloch
Lab	Sec 2	F	11:00	Sci C124	Lueck
Lab	Sec 3	W	2:00	Sci C124	Mondloch
Lab	Sec 4	Th	2:00	Sci C124	Schulfer

Assignments & Grading



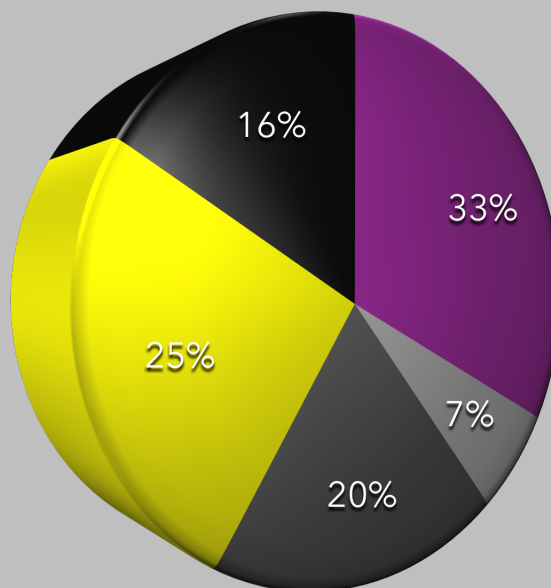
Five fifty point **quizzes** for **200 total points**. Your lowest quiz score will be dropped.

Your midterm will be cumulative. **100 total points**.

Your **final exam** will be cumulative. **150 total points**.

Twelve **lab reports** for **120 total points**.

Daily **Clicker** questions ("homework") will be graded, 1/2 point per question. **40 total points**. Your five lowest clicker scores will be dropped.



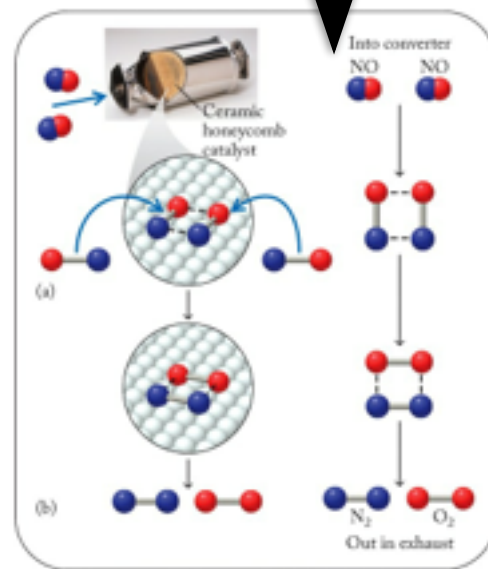
The grading scale is shown below. I will never adjust the grade scale higher. For example, if you obtain 83% in the class, you will receive no less than a B. Please do not ask if I grade on a curve. Your grades will be regularly updated on D2L and it is YOUR responsibility to keep track of them. **You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

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 (9/5)	Review/Unit 1	-
2 (9/12)	Unit 1/Unit 2	-
3 (9/19)	Unit 2	Quiz 1 (9/20)
4 (9/26)	Unit 3	-
5 (10/3)	Unit 4	Quiz 2 (10/4)
6 (10/10)	Unit 4	-
7 (10/17)	Unit 5	Quiz 3 (10/18)
8 (10/24)	Unit 5	-
9 (10/31)	Unit 6	Midterm (11/1)
10 (11/7)	Unit 6	-
11 (11/14)	Unit 6	Quiz 4 (11/15)
12 (11/21)	Unit 7	-
13 (11/28)	Unit 7	-
14 (12/5)	TBA	Quiz 5 (12/6)
15 (12/12)	Review/Finals	-
16 (12/19)	Finals	Final Exam (12/21)

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 a mix of multiple choice as well as short answer and administered during the discussion periods (Sci A110). 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, lab, and discussion.

Clicker Reading Homework

We will use clickers as a homework tool to help you stay up-to-date with the material in class. Clicker questions will be administered daily in lecture. Content will focus on material that I ask you to read for that class period. Makeup clicker homework is NOT allowed and must be submitted by clicker.

Do not forget your clicker!

Midterm & Final Exam

Your midterm and final exam will be a mix of multiple choice as well as short answer multiple choice and cumulative. The final exam will be administered on Wednesday 12/21 from 2:45—4:45 (Sci A121).

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): 9/15
Drop Day (W on transcript): 11/11

In the Lab

Week	Experiment
1 (9/5)	Classes Begin - No Labs
2 (9/12)	Molecular Models
3 (9/19)	Intermolecular Forces
4 (9/26)	Freezing Point Depression
5 (10/3)	Thermodynamics of Potassium Nitrate
6 (10/10)	Iodine Clock Reaction
7 (10/17)	Decomposition of Crystal Violet
8 (10/24)	Equilibrium Constant
9 (10/31)	La Chatelier's Principle
10 (11/7)	Determination of a Solubility Product
11 (11/14)	Strong vs Weak Acid Analysis
12 (11/21)	Thanksgiving Break - No Labs
13 (11/28)	Buffers
14 (12/5)	Electrochemical Cells
15 (12/12)	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.

Prelaboratory "quizzes" will be administered on D2L and will be due prior to the start of YOUR lab period. Note that there are also preliminary worksheets in the lab manual, you do NOT need to complete these.

During our regular labs you will be working with a partner but turning in your own worksheet. Some instruction will be given prior and during the lab.

Worksheets (*i.e.*, Data Sheets from the Lab Manual) will be due at the beginning of the following lab period. Your lab instructor will initial your worksheet if it is turned in on time. Lab reports turned in later than one week after their due date will not be graded.

Dress Code

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

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

We can (and will) measure equilibrium constants. Chemical equilibrium has important consequences for the environment as well as many other practical applications.



Make up labs typically are not 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. Homework sets and 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. **Clicker homework.**
- (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.

Quizzes & Exams.

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 (1)	R,P,G	R,P,G	R,P,G	R,P,G
9 am		Chem 106 Lecture	R,P,G	Chem 106 Lecture	Chem 106 Lecture
10 am		R,P,G	R,P,G	Office Hour	R,P,G
11 am	Office Hour	Chem 106 Discussion (1)	R,P,G	R,P,G	R,P,G
Noon	R,P,G	Chem 106 Discussion (2)	R,P,G	R,P,G	R,P,G
1 pm	R,P,G	R,P,G	Office Hour	R,P,G	R,P,G
2 pm	R,P,G	Chem 106 Discussion (3)	Chem 106 Lab (3)	R,P,G	R,P,G
3 pm	R,P,G	Chem 106 Discussion (4)		R,P,G	R,P,G
4 pm	R,P,G	R,P,G		R,P,G	R,P,G
5 pm	R,P,G	R,P,G	R,P,G	R,P,G	R,P,G

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