

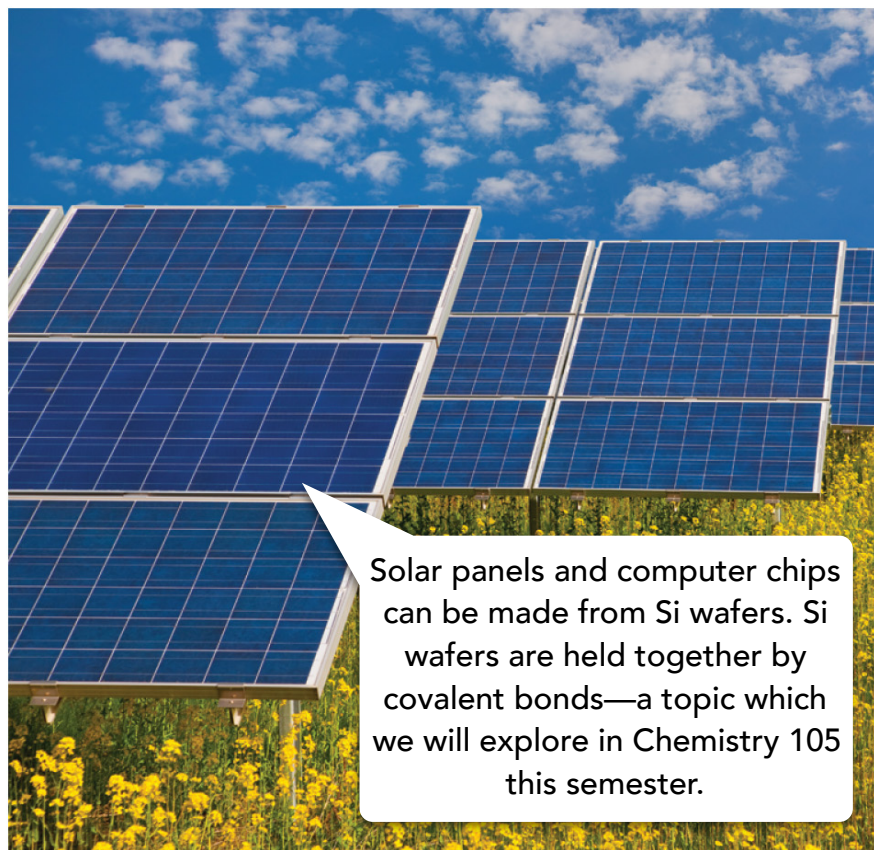
Chemistry 105

Fundamental
Chemistry

Spring 2018

Section 3

University of
Wisconsin-
Stevens Point



Solar panels and computer chips can be made from Si wafers. Si wafers are held together by covalent bonds—a topic which we will explore in Chemistry 105 this semester.

Course Description and Objectives

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

Chemistry is everywhere around us and it plays an essential role in nearly every aspect of our daily lives. In Chemistry 105 you will explore fundamental concepts in chemistry, including: making measurements, atomic and molecular structure, chemical bonding, intermolecular forces, stoichiometry, reactions in

aqueous solutions, and thermochemistry.

Upon completion of Chemistry 105 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 on our D2L website for study guides. The study guides contain more specific learning objectives, suggested reading, and suggested homework problems for each unit throughout the semester.

Your Professor: Dr. Mondloch (Dr. M)

Office: Sci D145

Phone Extension: (715) 346-3715

Email: jmondloc@uwsp.edu

Office Hours: T 4-5, W 10-11, Th 4-5.

Additional times available by appointment (please email me).

Course Website: Additional information can be found on the course website in D2L (Fundamental Chemistry - CHEM 105 SEC03).

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 Chemistry 105 Lab Manual Spring 2018 for Bowling, Czerwinski, & Mondloch.

Class Outline

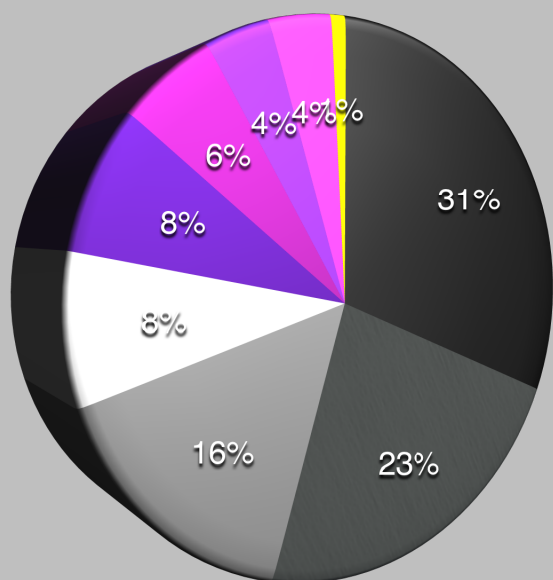
	Section	Day(s)	Time	Location	Instructor
Lecture	Sec 03	M, T, Th	3:00	Sci D101	Dr. Mondloch
Discussion	Sec 03D1	W	11:00	Sci A111	Dr. Mondloch
Discussion	Sec 03D2	W	12:00	Sci A111	Dr. Mondloch
Discussion	Sec 03D3	W	2:00	Sci A111	Dr. Mondloch
Discussion	Sec 03D4	W	3:00	Sci A111	Dr. Mondloch
Lab	Sec 03L1	T	8:00	Sci C124	Dr. McGarry
Lab	Sec 03L2	Th	8:00	Sci C124	Dr. McGarry
Lab	Sec 03L3	M	11:00	Sci C124	Mr. Lueck
Lab	Sec 03L4	T	11:00	Sci C124	Mr. Lueck

Dr. Mondloch's Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8 am	Chem 299/399	R,P,G	Chem 299/399	R,P,G	R,P,G
9 am	Chem 299/399	Lecture Prep Please Avoid	Chem 299/399	Lecture Prep Please Avoid	Lecture Prep Please Avoid
10 am	Chem 299/399	Chem 355 Lecture (A112)	Office Hour (D145)	Chem 355 Lecture (A112)	Chem 355 Lecture (A112)
11 am	Chem 299/399	R,P,G	Chem 105 Disc (A111)	R,P,G	Chem 299/399
Noon	Chem 299/399	R,P,G	Chem 105 Disc (A111)	R,P,G	Chem 299/399
1 pm	Chem 299/399	R,P,G	R,P,G	R,P,G	Chem 299/399
2 pm	Lecture Prep Please Avoid	Lecture Prep Please Avoid	Chem 105 Disc (A111)	Lecture Prep Please Avoid	Chem 299/399
3 pm	Chem 105 Lecture (D101)	Chem 105 Lecture (D101)	Chem 105 Disc (A111)	Chem 105 Lecture (D101)	Chem 299/399
4 pm	R,P,G	Office Hour (D145)	R, P, G	Office Hour (D145)	Chem 299/399
5 pm	R,P,G	R,P,G	R,P,G	R,P,G	Chem 299/399

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

Assignments & Grading



- Lecture Quizzes
- Final Exam
- Midterm
- Lab Quiz
- Lab Reports
- Pre-Lab Quizzes
- Periodic Table Quiz
- Naming Quiz
- Syllabus Quiz

Bryan Cranston played Walter White (aka Heisenberg) in the critically acclaimed TV show Breaking Bad. Did you know that the real Heisenberg (Werner Heisenberg) played a pivotal role in developing our view of atomic and molecular structure.



Four **lecture quizzes** for **200 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 if you have NO more than three unexcused absences in lecture prior to the midterm.

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 & 4 if you have NO more than three unexcused absences in lecture after the midterm.

One **lab quiz** for **50 total points**. Twelve **lab reports** for **48 total points**. Twelve **pre-lab quizzes** for **36 total points**.

One **periodic table quiz (25 total points)** and one **naming quiz (25 total points)**.

One **syllabus quiz** for **6 total points**.

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.

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 - 60%); F (<60%)

Lecture & Discussion

Week	Description	Quizzes/Exams
1 (1/22)	Unit 1	-
2 (1/29)	Unit 1/Unit 2	-
3 (2/5)	Unit 2	Quiz 1 (2/5), Periodic Table Quiz (2/7)
4 (2/12)	Unit 2/Unit 3	-
5 (2/19)	Unit 3	Quiz 2 (2/19)
6 (2/26)	Unit 3/Unit 4	Naming Quiz (2/28)
7 (3/5)	Unit 4/Unit 5	Quiz 3 (3/5)
8 (3/12)	Unit 4/Unit 5	-
9 (3/19)	Unit 5	Midterm (3/19)
10 (3/26)	Spring Break	No Classes
11 (4/2)	Unit 5	-
12 (4/9)	Unit 6	-
13 (4/16)	Unit 6/Unit 7	Quiz 4 (4/16)
14 (4/23)	Unit 7	-
15 (4/30)	Unit 7	Lab Quiz (4/30)
16 (5/7)	Review	-
17 (5/14)	Finals Week	Final Exam (5/14)

Unit 1: Measurements & Calculations in Chemistry

Unit 2: Atomic Structure

Unit 3: Molecular Structure

Unit 4: Molecular Shape

Unit 5: Intermolecular Forces

Unit 6: Chemical Reactivity

Unit 7: Aqueous Solutions & Chemical Reactivity

Unit 8: Thermochemistry

Our tentative lecture schedule is shown on the right.

Quiz and Exam dates will NOT change!

See "the fine print" for details regarding policies for makeup quizzes and exams.

Often in Lecture & Discussion you will be working on problems in groups. Please bring something to write with, your chemistry notes, and a calculator so that you can best utilize your time.

Syllabus Quiz

The Syllabus Quiz will be completed during the first lecture (Sci D101).

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.

Midterm & Final Exam

Your Midterm and Final Exams 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 5/14 from 10:15–12:15 (Sci D101). Students who are unable to attend the final exam must make arrangements with me prior to the exam; no make-up will be given if you have seen the final exam.

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 to keep your old labs and lab report forms! They will be very useful for the lab quiz.

Periodic Table & Naming Quiz

The Periodic Table & Naming Quizzes will be free response and administered during the discussion periods (Sci A111).

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): 1/31
Drop Day (W on transcript): 4/6

In the Lab

Week	Experiment
1 (1/22)	Check In
2 (1/29)	Measurement & Significant Figures
3 (2/5)	Intro to Lab Equipment & Techniques
4 (2/12)	Density & Graphing
5 (2/19)	Law of Definite Proportions
6 (2/26)	Water in a Hydrate
7 (3/5)	Intro to Absorption Spectroscopy
8 (3/12)	Spec Determination of Iron
9 (3/19)	Separation of a Mixture
10 (3/26)	Spring Break!
11 (4/2)	Chemical Reactivity
12 (4/9)	Limiting Reactant
13 (4/16)	Titration of Vinegar Part I
14 (4/23)	Titration of Vinegar Part II
15 (4/30)	Enthalpy By Solution Calorimetry
16 (5/7)	Check Out

Dress Code

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

Consult your lab instructor for additional details.



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. All questions regarding your lab grade must be directed to me.

You can NOT have more than one unexcused absence from lab over the course of the semester. Doing so will result in an F for the course. Contact me if extenuating circumstances arise.

It is your responsibility to come prepared for lab. The lab may NOT be described in detail by your instructor prior to the start of lab. Prelaboratory "quizzes" will be administered on D2L and are due prior to the start of YOUR lab period.

For most of the labs you will be working by yourself and turning in your own lab report. Lab reports are due the following week at the start of lab. Labs turned in more than one week late will not be graded.

Is this what you think of when you hear the word chemist? Most chemists spend much of their time in the lab. In Chem 105 you will learn how to work safely in the lab—is our chemist working safely in the lab?

Because you will do new labs every week, make up labs are typically not possible. Please consult with me ahead of time if you have a conflict.

The Fine Print

Attendance

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

- (i) UWSP athletic event. Please get written authorization from your coach (not a student).
- (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

UWSP is committed to providing reasonable and appropriate accommodations to students with disabilities and temporary impairments. If you have a disability or acquire a condition during the semester where you need assistance, please contact the Disability and Assistive Technology Center on the 6th floor of Albertson Hall (library) as soon as possible. DATC can be reached at DATC@uwsp.edu.

Study Hints

This course will not be easy for most students. As a full-time student it is recommended that you study 2-3 h outside of class per credit. That means you should be spending approximately 10-15 h per week on chemistry outside of the classroom! Suggested homework problems are designed to alert you to your level of comprehension and I 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.

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.

Tutoring Services

Supplemental Instruction (SI) 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. Watch for emails and listen to class announcements to hear when and where your leader will hold their group sessions and office hour. Additional tutoring is available through the Tutoring Learning Center (<http://www.uwsp.edu/tlc/Pages/CA-tutoring.aspx>).

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!

Approximately 70 of the 83 stable elements on the periodic table can be found in smartphones—this accounts for 84% of the stable elements. For example, the elements below can be found in the displays of many of your smart phones. (ACS ChemMatters Teachers Guide *Smartphones: Smart Chemistry*, April 2015)

Al

O

Si

Na

K

