Chem. 106 Syllabus
Fundamental Chemistry
Spring 2018

Contact Information

Instructor: Dr. Amanda Jonsson Email: amanda.jonsson@uwsp.edu
Office Phone: 715-346-2600 Office: Science B145

The best way to reach me is through my university email. I check my email regularly during working hours (8 a.m. – 5 p.m.). I do not regularly check my email at night or on weekends.

My Schedule – updated schedule can be found on D2L or outside my office door

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00	Chem 106 02L1 Lab B140	Projects, Research & Grading	Projects, Research & Grading	Projects, Research & Grading	Projects, Research & Grading
9:00					
10:00		Chem 106 02D1 Disc A110	***Office Hour B145***		
11:00	Course Prep	Course Prep	Course Prep		Course Prep
12:00	Chem 106 Sec 02 Lecture A121	Chem 106 02D2 Disc A112	Chem 106 Sec 02 Lecture A121		Chem 106 Sec 02 Lecture A121
1:00	***Office Hour B145***	Chem 106 02D3 Disc A112	Course Prep		***Office Hour B145***
2:00	Projects, Research & Grading	Chem 106 02D4 Disc A112	Chem 106 02L4 Lab B140	***Office Hour B145***	Seminar / Meeting
3:00		***Office Hour B145***		Projects, Research & Grading	
4:00		Projects, Research & Grading			Projects, Research & Grading

Meeting Times

Lectures: 12 – 12:50 p.m. Monday, Wednesday, Friday *Room*: Science A121

Lab/Discussion Sections:

Sec.	Discussion	Room	Sec.	Lab	Room	Lab Instructor (Office)
02D1	T 10 – 10:50	A110	02L1	M 8 – 10:50	B140	Dr. Jonsson (B145)
02D2	T 12 – 12:50	A112	02L2	R 11 – 10:50	B140	Dr. Szpunar (B129)
02D3	T 1 – 1:50	A112	02L3	M 2 – 10:50	B140	Dr. Szpunar (B129)
02D4	T 2 – 2:50	A112	02L4	W 2 – 10:50	B140	Dr. Jonsson (B145)

Required Materials

Textbook

Chemistry – An Atoms Focused Approach Gilbert, Kirss, Foster, W.W. Norton & Company, *2014*. This book is available for rental at the University Bookstore.

Lab Notebook + Online Homework Access

An appropriate lab notebook and Sapling Learning online homework access card are available for purchase at the University Bookstore. You need to make sure to purchase a notebook that comes with carbonless self-copy pages, pre-printed page numbers and no

perforations on the permanent pages. See your email for more information about purchasing access for Sapling Learning online homework.

Lab Manual
Chem. 106 Lab Manual – Spring 2018, UW-Stevens Point. This lab manual is available for purchase at the University Bookstore.

Scientific Calculator
Your calculator must be able to do logarithms and scientific notation. **You will not be allowed to use calculators with an alphabetic keyboard and/or internet access, or apps on other electronic devices such as cell phones, tablets, etc. on exams.**

Course Description

Fundamental principles and theories of chemistry, including stoichiometry, atomic and molecular structure and bonding, nuclear chemistry, thermodynamics, descriptive chemistry of nonmetals and transition metals, chemical kinetics and equilibria, introduction to organic chemistry. A continuation of Chemistry 105.

Chemistry Department Learning Outcomes Appropriate for Chem. 106

Students will perform tasks, at an introductory level, representing these learning outcomes.

1. Apply foundational principles of chemistry to explain chemical and physical properties of matter.
2. Work safely in a chemistry laboratory.
3. Use appropriate methods, techniques, and modern instruments for the synthesis, isolation, and characterization of matter and for the analysis of mixtures.
4. Analyze experimental results to draw justifiable conclusions.
5. Address chemical problems using accumulated knowledge and skills in combination with scientific methodology to design and conduct experiments.

This Course Meets the Following General Education Learning Outcomes

1. Explain major concepts, methods, or theories in the natural sciences to investigate the physical world.
2. Interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques.
3. Describe the relevance of aspects of the natural sciences to their lives and society.

Preparation/Participation

Before coming to class each day, you should read through the assigned reading. I do not expect that you understand all of the material before coming to class; however, I do expect that you are familiar enough with the material that we can discuss it without having to stop to define each new word. You should also review your notes from the previous lecture.

During class I expect that you pay attention, refrain from using technology (phones, laptops, tablets, etc.) in a disruptive way, and participate in class discussions and activities. Participation is not awarded its own grade, but in my experience students who participate in class tend to do better than those who do not.

Grading

Lab Reports – You will be completing 13 laboratory exercises during the semester. Most reports are worth 10 points. One lab will take 2 weeks to complete and that report will be worth 20 points. **Lab make-ups are not allowed for any reason.** Your lowest 10-point lab report grade will be dropped.

Online Homework – We will be using the Sapling Learning online homework system this semester. There will be one homework assignment each for chapters 10 – 14, and two assignments for chapter 15. In addition, there will be two longer assignments: one for Chem. 105 review at the start of the semester and one cumulative assignment (including chapters 17 and 21) due at the end of the semester. Your online homework grade will be scaled out of a total of 50 points.

Discussion Activities – Each week in discussion we will be doing activities to help you understand the material we are covering in lecture. There are 15 discussion activities. I will drop 3 discussion activities from your grade. Your discussion points will be scaled out of 40 points.

Lecture Exams – There will be a total of 4 exams given during lecture. Lecture exams will last 50 minutes.

Final Exam –At the end of the semester on Tuesday, May 15th from 12:30 – 2:30 p.m. is a cumulative final exam, covering all material from the semester.

Students who must reschedule an exam should make arrangements before the exam takes place. Students who need a make-up for an unforeseeable event must contact me within 24 hours of the missed exam to reschedule. Make-ups must be taken within 2 business days, regardless of the reason for missing the assignment.

Laboratory							
	11 One-Week Lab Reports	each	10	pts	=	110	pts
	Two-Week Lab Report					20	pts
	Lab Total					130	pts
Lecture							
	Online Homework					50	pts
	Discussion Activities					40	pts
	4 Lecture Exams	each	70	pts	=	280	pts
	Final Exam					150	pts
	Lecture Total					520	pts
Overall Class Points						**650**	**pts**

Your grade in the overall course will be assigned using the scale shown below.

% Total Points	Grade	% Total Points	Grade
≥ 93 %	A	73 – 76 %	C
90 – 92 %	A–	70 – 72 %	C–
87 – 89 %	B+	67 – 69 %	D+
83 – 86 %	B	63 – 66 %	D
80 – 82 %	B–	< 63 %	F
77 – 79 %	C+		

******You must earn at least a C– (>70%) in Chem. 106 before taking Chem. 220, Chem. 248, and/or Chem. 325******

Academic Responsibility & Integrity

I encourage students to work and study in groups. However, projects submitted for a grade must reflect your own work and understanding of the material. Academic dishonesty will be dealt with following the rules on academic misconduct in the current UWSP handbook and, at a minimum, a score of 0 on the assignment. Egregious and/or repeated problems will result in an F in the course. Each student is expected to act with honesty and integrity, and must respect the rights of others to learn in a safe, respectful and inviting environment. *Please do not hesitate to contact me if you have any questions or concerns.*

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 or (715) 346 – 3365.

Important Dates

January 22nd	Classes begin
January 31st	Last day to drop a 16-week course without a grade
April 6th	Last day to drop a 16-week course
May 11th	Last day of classes
May 15th	Final Exam, 12:30 – 2:30 p.m.

Opportunities to Get Help

The best way to get help with this class is to drop by my office hours (Science B145)! I have scheduled 5 office hours each week (see schedule on the first page). If none of my office hours work in your schedule, please let me know. You can always email me to set up an appointment outside of my regularly scheduled office hours. Make sure to email me a list of times that work in your schedule. If necessary, you can take pictures of your work and email me questions as well.

Tutoring in Math and Science (TIMS) in the Tutoring-Learning Center (TLC) offers **free** Group and Drop-in sessions to support you in your chemistry classes. See the website (https://www.uwsp.edu/tlc/Pages/CA-tutoring.aspx) for times they are available. In addition, TIMS offers the option for individual chemistry tutoring sessions (see website for information on cost, if any). If you have questions about the schedule or would like to make an appointment, please visit room ALB 018, email (tlctutor@uwsp.edu) or call (715) 346-3568 for information.

Recommended study habits and tips

Chemistry is not an easy subject to master, and you should not expect to master it without hard work. The general rule of thumb is that you should spend 2 – 3 hours of time outside of class for each hour that you are in class. Chem. 106 is a 5 credit class, which means that you should plan on spending *10 – 15 hours a week* preparing for class, working though end-of chapter problems, working on class assignments, and studying for exams. **The best way to break this time up is to spend a little bit of time working on chemistry each day.** Chemistry can become incredibly overwhelming if you wait until the night before the exam to start studying.

Here are some study habits and tips that may be useful.

- Before coming to class each day, quickly (5 – 10 minutes) review your notes from the previous class to remind yourself of what we have already covered.
- Attend class!
- When taking notes in class leave a lot of white space so that you can go back and fill in gaps later. After class, sit down with a friend and compare notes. Fill in the things you are missing. When you are done read through your notes and see if they make sense. If not, talk to a friend, reread sections of the book, or talk to the professor to keep filling in the gaps until things make sense to you.
- Do as many problems as possible! The best way to learn how to answer/solve chemistry problems, or any other skill, is practice, practice, and more practice!
- Studying with friends or with a tutor can help you get started as you learn a new topic. However, **on an exam no one else will be there to get you started on a problem or tell you when you have made a mistake!** You need to spend at least part of your time studying alone, without looking at your notes, so you can be confident walking into an exam that you know how to do these types of problems.

Lab Notebooks *You must **use pen** when writing in your lab notebook.*

Before going to lab:

1. Update the table of contents (possibly called the record of contents in your notebook) with appropriate date, experiment title and starting page number of the experiment.
2. Experiment title
3. Experiment purpose. Write one or two sentences stating what you are hoping to determine or learn from this experiment.
4. Procedure outline or flowchart. This should NOT be a copy of the lab manual! Briefly outline or draw a flowchart summarizing the experiment. Include amounts and types of chemicals, important times (for example: heat for 10 minutes), and instruments/equipment used.
5. Data tables prepared in advance. Every table should have a descriptive title and table number (example: Table 1 Masses of Unknown Liquid #1), column and/or row headings (including units) and enough room to fill in the appropriate data. Your data tables do NOT need to be perfect! If you have questions, ask your lab or lecture instructor BEFORE lab.

During Lab

1. At the start of lab, fill out the top of the lab notebook grading rubric found in your lab manual. Open your notebook to the appropriate page and your lab instructor will check it over and fill in the pre-lab rubric.
2. As you do the experiment, fill in missing information to the procedure and record your results in the appropriate data tables
3. **If you make a mistake anywhere in your notebook, cross the mistake out with a SINGLE LINE and INITIAL next to the mistake.** You should still be able to read the original information! Example: ~~110.5 g~~ *AJ* 112.4 g Not appropriate: [redacted] 112.4 g
4. Write a brief conclusion or summary.
5. Sign and date ALL pages of your lab notebook.
6. At the end of lab, hand in the copies of your notebook pages, rubric, post-lab questions, and graph(s) (if needed).

Tentative Course Schedule

I reserve the right to change this schedule, including homework due dates and/or exam dates as needed. Any changes will be announced in advance in class and/or through D2L/email. If you miss class be sure to talk to your classmates about any announcements you may have missed.

Week	Dates	Description	Important Dates
1	1/22 – 1/26	Chapter 10	Sun. 1/28 Review HW Due
2	1/29 – 2/2	Chapter 10 / Chapter 11	Sun. 2/4 Chapter 10 HW Due
3	2/5 – 2/9	Chapter 11	Sun. 2/11 Chapter 11 HW Due
4	2/12 – 2/16	Chapter 12	**Fri. 2/16 Exam #1**
5	2/19 – 2/23	Chapter 12 / Chapter 13	Sun. 2/25 Chapter 12 HW Due
6	2/26 – 3/2	Chapter 13	
7	3/5 – 3/9	Chapter 13	Sun. 3/11 Chapter 13 HW Due
8	3/12 – 3/16	Chapter 14	**Wed. 3/14 Exam #2**
9	3/19 – 3/23	Chapter 14	
Spring Break!			
10	4/2 – 4/6	Chapter 14 / Chapter 15	Sun. 4/8 Chapter 14 HW Due
11	4/9 – 4/13	Chapter 15	**Fri. 4/13 Exam #3** Sun. 4/15 Chapter 15 part 1 HW Due
12	4/16 – 4/20	Chapter 15	
13	4/23 – 4/27	Chapter 15 / Chapter 17	Sun. 4/29 Chapter 15 part 2 HW Due
14	4/30 – 5/4	Chapter 17 / Chapter 21	**Fri. 5/4 Exam #4**
15	5/7 – 5/11	Chapter 21	Sun. 5/13 Cumulative HW Due
Tuesday 5/15		**12:30 – 2:30 p.m.**	**Cumulative Final Exam**

Lab Schedule (Also in your Chem. 106 lab manual)

Week	Dates	Lab
1	1/22 – 1/26	Safety and Check In
2	1/29 – 2/2	Experiment 1: Synthesis of Aspirin
3	2/5 – 2/9	Experiment 2: Analysis of Aspirin
4	2/12 – 2/16	Experiment 3: Molar Mass of a Metal by Gas Evolution
5	2/19 – 2/23	Experiment 4: Lattice Enthalpy, Hydration Enthalpy, and Heat of Solution
6	2/26 – 3/2	Experiment 5: Freezing Point Depression
7	3/5 – 3/9	Experiment 6: Iodine Clock
8	3/12 – 3/16	Experiment 7: Decomposition of Crystal Violet
9	3/19 – 3/23	Experiment 8: Determination of an Equilibrium Constant
Spring Break!		
10	4/2 – 4/6	Experiment 9: Le Châtelier's Principle
11	4/9 – 4/13	Experiment 10: Thermodynamics of KNO_3 Dissolution
12	4/16 – 4/20	Experiment 11: Strong vs. Weak Acid Analysis (Week 1)
13	4/23 – 4/27	Experiment 11: Strong vs. Weak Acid Analysis (Week 2)
14	4/30 – 5/4	Experiment 12: Buffers
15	5/7 – 5/11	Experiment 13: Electrochemical Cells AND Check Out