

# Chem. 105 Syllabus Fundamental Chemistry Fall 2018

## Contact Information

Instructor: Dr. Amanda Jonsson  
Office Phone: 715-346-2600

Email: [ajonsson@uwsp.edu](mailto:ajonsson@uwsp.edu)  
Office: CBB 400

The best way to reach me is through my university email. I check my email 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

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00			Chem 105 03L1 CBB 230		
9:00		Chem 105 Lec 02 CBB 101		Chem 105 Lec 02 CBB 101	Chem 105 Lec 02 CBB 101
10:00	<b>Office Hour</b>				<b>Office Hour</b>
11:00		Chem 105 03L2 CBB 230		Chem 105 03D1 CBB 261	
12:00				Chem 105 03D2 CBB 261	
1:00	Chem 105 Lec 03 CBB 105			Chem 105 Lec 03 CBB 105	Chem 105 03D4 CBB 261
2:00		<b>Office Hour</b>	<b>Office Hour</b>	<b>Office Hour</b>	Seminar / Meeting
3:00				Chem 105 03D3 CBB 261	
4:00					Class Prep

## Meeting Times

*Lectures:* 1 – 11:50 p.m. Monday, Wednesday, Friday

*Room:* CBB 105

### *Lab/Discussion:*

Section	Discussion (Room)	Lab (Room)	Lab Instructor (Office)
03D1	R 11 – 11:50 (CBB 261)	W 8 – 11:50 (CBB 230)	Dr. Amanda Jonsson (CBB 400)
03D2	R 12 – 12:50 (CBB 261)	T 11 – 1:50 (CBB 230)	Dr. Amanda Jonsson (CBB 400)
03D3	R 3 – 3:50 (CBB 261)	R 11 – 1:50 (CBB 230)	Dr. Erin Speetzen (CBB 402)
03D4	R 1 – 1:50 (CBB 261)	T 2 – 4:50 (CBB 230)	Dr. Erin Speetzen (CBB 402)

## 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 Manual*

Chem. 105 Lab Manual – Fall 2018, UW-Stevens Point. This lab manual is available for purchase at the University Bookstore.

### *Lab Notebook and Goggles*

An appropriate lab notebook and pair of chemical resistant, splash proof goggles 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. You are not allowed to wear safety glasses in lab.

### *Scientific Calculator*

Your calculator must be able to do logarithms, exponents and scientific notation. **You will not be allowed to use graphing calculators or calculator apps on cell phones, tablets, etc. on any exams.**

## **Optional Materials**

### *3-Ring Binder*

In order to better keep track of course materials, some students may find that using a 3-ring binder is beneficial as it allows you to more easily incorporate handouts or figures into your notes.

## **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.

## **Chemistry Department Learning Outcomes Appropriate for Chem. 105**

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 fully understand all 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.

During class I expect that you pay attention, refrain from using technology (tablets, laptops, phones, 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.

**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. 105 is a 5-credit class, which means that you should plan on spending at least *10 – 15 hours per week* preparing for class, working through end-of chapter problems, and studying for exams and quizzes. **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 an exam to start studying.

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

- Before class, quickly (5 – 10 minutes) review your notes from the previous class to remind yourself of what we have already covered.
- When taking notes in class leave a lot of white space so that you can go back and fill in gaps later. After class, try to 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, re-read sections of the book, or talk to the professor 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!
- **Attend office hours!** Have questions ready to ask and we can clear up any gaps in your understanding.
- 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 make 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.

**Grading**

Your grade in this course will be broken down into two components: a laboratory component and a lecture component. You must receive a passing grade in both the lecture and laboratory components in order to pass the overall course.

Your grade in both the lab component, lecture component, and in the overall course will be determined using the scale shown below. I reserve the right to change the grading policy as needed throughout the semester, but I will not make it harder to receive a grade.

Percent	Grade	Percent	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 receive a passing grade (>63%) in BOTH the laboratory component AND the lecture component to pass this course\*\*\*\***

**\*\*You must earn at least a C- in Chem. 105 before taking Chem. 106\*\***

Laboratory Component The lab component grade will be determine based on your performance on lab exercises and a written lab exam given at the end of the semester.

*Lab Exercises* – Lab is an essential part of this class. You will hand in lab reports after each lab. **Lab make-ups are not allowed for any reason.** Each lab will be worth 8 points. *Your 10 highest scores will count towards your lab grade.*

*Lab Exam* – At the end of the semester, a written lab exam will be given during lecture. This written exam will cover the concepts and skills you should have acquired in the laboratory during the semester.

Lecture Component The lecture component grade will be determine based on your performance on discussion quizzes, lecture exams, and a final exam.

*Discussion Quizzes* – Each week there will be a quiz in discussion to help you understand the material we are covering in lecture. *Your 12 highest scores will count towards your lecture grade.*

*Lecture Exams* – There will be a total of 4 exams given during lecture. Lecture exams will last 50 minutes and are all closed note, closed book exams.

*Final Exam* – At the end of the semester is a cumulative final exam, covering all material from the semester. The final exam will last 2 hours and is also closed note, closed book.

Students who must reschedule an exam should **make arrangements before the exam takes place.** If an unforeseeable event takes place, students 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. Students who fail to meet these timelines will not be allowed a make-up.

#### Laboratory

Top 10 Lab Reports	each	8	pts	=	80	pts
Lab Exam					40	pts
<hr/>					120	pts
Lab Total						

#### Lecture

Discussion Quizzes					60	pts
4 Lecture Exams	each	70	pts	=	280	pts
Final Exam					140	pts
<hr/>					480	pts
Lecture Total						

<b>Overall Class Points</b>	<b>600 pts</b>
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#### Academic Responsibility & Integrity

I encourage students to study in groups. However, anything 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 6<sup>th</sup> floor of Albertson Hall (library) as soon as possible. DATC can be reached at [DATC@uwsp.edu](mailto:DATC@uwsp.edu) or (715) 346 – 3365.

### **Opportunities to Get Help**

One of the best ways to get help is to attend my office hours. If my office hours don't fit in your schedule, you can email me to set up an appointment. 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. In addition, TIMS offers the option for individual chemistry tutoring sessions. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and chemistry content knowledge to help others succeed. Discussing chemistry concepts and practicing problems together clarifies and solidifies knowledge, and the tutors are eager to study with you. If you have questions about the schedule or would like to make an appointment, please visit the TLC in room 018 ALB, email ([tlctutor@uwsp.edu](mailto:tlctutor@uwsp.edu)) or call (715) 346-3568 for information.

### **Important Dates**

September 4 <sup>th</sup>	Classes begin
September 13 <sup>th</sup>	Last day to drop a 16-week course without a grade
November 9 <sup>th</sup>	Last day to drop a 16-week course
November 21 <sup>st</sup>	Thanksgiving break begins at 6 p.m.
December 14 <sup>th</sup>	Last day of classes
December 20 <sup>th</sup>	Final Exam, 8 – 10 a.m.

**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. For example, include amounts and types of chemicals, important times (for example: heat for 10 minutes), and instruments 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 a lab notebook grading rubric. 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: ~~110.5 g~~ 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 your notebook copies, rubric and post-lab questions.

**CHEM 105 Lab Notebook Grading Rubric**

Name: \_\_\_\_\_

Experiment: \_\_\_\_\_

Section: \_\_\_\_\_

Item	√
<i>To be Completed by the Lab Instructor (pre-lab):</i>	
Updated table of contents	
Experiment title	
Experiment purpose	
Brief procedure or flow chart	
Data tables prepared in advance	
All entries made in ink	
<i>Lab Instructor Signature/initials:</i>	
<i>To be Completed by the Lab Grader (post-lab):</i>	
Date and signature present at the bottom of each page with data	
All data present in tables with titles, headings, and units	
Data errors appropriately labeled and corrected	
Results summary and/or conclusion	
<b>Total Number of missing/incorrect Items</b>	

Score on post lab questions	
Lab notebook deductions	
<b>Overall Lab Score</b>	

Notes: √ means item is present and correct.

0.25 pts will be deducted for each missing/incorrect item

**Tentative Course Schedule**

The instructor reserves the right to change this schedule as needed. Suggested readings, suggested practice problems from your textbook and important dates will be announced at the start of lecture. If you miss class be sure to talk to your classmates about any announcements. Any additional changes to the schedule will be announced via email and/or D2L.

<b>Week</b>	<b>Dates</b>	<b>Description</b>	<b>Important Dates</b>
1	9/4 - 9/7	Chapter 1	<i>Classes Start Tues. 9/4</i>
2	9/10 - 9/14	Chapter 1/Chapter 2	
3	9/17 - 9/21	Chapter 2 / Chapter 3	
4	9/24 - 9/28	Chapter 3	<b>Fri. 9/28 Exam #1</b>
5	10/1 - 10/5	Chapter 3 / Chapter 4	
6	10/8 - 10/12	Chapter 4	
7	10/15 - 10/19	Chapter 5	<b>Fri. 10/19 Exam #2</b>
8	10/22 - 10/26	Chapter 6 / Chapter 7	
9	10/29 - 11/2	Chapter 7	
10	11/5 - 11/9	Chapter 7	<b>Fri. 11/9 Exam #3</b>
11	11/12 - 11/16	Chapter 8	
12	11/19 - 11/23	Chapter 8	<i>No Labs or Discussion (Thanksgiving)</i>
13	11/26 - 11/30	Chapter 8	
14	12/3 - 12/7	Chapter 9	<b>Fri. 12/7 Exam #4</b>
15	12/10 - 12/14	Chapter 9	<b>Fri. 12/14 Lab Exam</b>
	Thursday, 12/20	8 - 10 a.m.	<b>Cumulative Final Exam</b>

**Lab Schedule** (Also in your Chem. 105 lab manual)

<b>Week</b>	<b>Dates</b>	<b>Lab</b>
1	9/4 - 9/7	Safety and Check In
2	9/10 - 9/14	Precision vs. Accuracy in Scientific Measurements and Calculations
3	9/17 - 9/21	Water Content of a Hydrated Salt
4	9/24 - 9/28	Introduction to Absorption Spectrophotometry
5	10/1 - 10/5	Colorimetric Identification of Iron
6	10/8 - 10/12	Periodic Properties
7	10/15 - 10/19	Lewis Formulas & Molecular Models
8	10/22 - 10/26	Spectrophotometric Analysis for Iron in Cereals
9	10/29 - 11/2	Intermolecular Forces
10	11/5 - 11/9	Separation of a Mixture
11	11/12 - 11/16	Limiting Reactant
12	11/19 - 11/23	<i>No Lab - Thanksgiving Break</i>
13	11/26 - 11/30	Introduction to Titrations: KHP Titration
14	12/3 - 12/7	Vinegar - Is the Label Truthful?
15	12/10 - 12/14	Check Out