

# Chemistry 106 -Fundamental Chemistry

## Lecture Section 01

### Course Syllabus Fall 2022

**Instructor:** Dr. Laura J. Cole  
**Office:** Chemistry Biology Building 412  
**Phone:** (715)346-4302  
**Email:** lcole@uwsp.edu  
**Canvas:** Chemistry 106

**Office hours:** Monday 10:00 am and 1:00 pm, Tuesday 3:00 pm, Thursday 12:00 pm. If none of these scheduled times work for you, please contact me and we can setup an alternate time.

#### Class Sessions

<b>Lecture:</b>	Sec 01	MWF	9:00	CBB	105
<b>Discussion:</b>	Sec 01D1	T	9:00	CBB	105
<b>Laboratory:</b>	Sec 01L1	T	11:00 - 1:50	CBB	236
	Sec 01L2	W	11:00 - 1:50	CBB	236

#### Course Description

Chemistry 105 and 106 are for students who desire one year of college chemistry. Chemistry 106 is a continuation of Chemistry 105 in which fundamental chemistry will be probed in more detail. The basic knowledge gained in Chemistry 105 will be expanded for more complex chemical ideas. Specific topics will include organic chemistry, liquids and solids, solutions, kinetics, different aspects of equilibrium, acid - base reactions, solubility equilibria, electron transfer reactions. Chemistry 105 with a grade of C- or better and Math 107 or suitable math placement score is required for this course.

The course format is lecture, discussion and laboratory. In the discussion session, students will work in small groups on practice materials, have time to ask questions and take quizzes. In the laboratory session, material presented in lecture will be further explored by performing experiments. From these three distinct types of classroom interaction, you will become more knowledgeable about fundamental chemistry.

In addition, this course fulfills the natural science portion of the general education program. The learning outcomes for natural science are:

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.

## **Required Materials**

**Textbook:** Chemistry: Structure and Properties, 2nd Edition, by Nivaldo J. Tro. Pearson Education, Inc., 2018. The textbook is available at text rental.

**Laboratory Materials:** Chem. 106 on LabFlow. This is a website that contains the experiment handouts, pre-lab videos, pre-lab quizzes and experiment reports. An access card is available for purchase from the bookstore or you may purchase it directly from the vendor at <https://labflow.com/app/login>.

**Laboratory Goggles:** These must be goggles, not glasses. Goggles may be purchased from the bookstore or nicer ones may be purchased from the Chemistry Club at the start of the semester.

**Laboratory Notebook:** A bound composition notebook.

**Calculator:** A scientific calculator which will perform the functions  $\log x$ ,  $10^x$ ,  $\ln x$ , and  $e^x$ .

## **Policies & Procedures**

**Face Coverings:** Wearing face masks to prevent the spread of COVID-19 is encouraged but not required.

**Attendance:** Attendance in lecture is your responsibility; however, the material covered in lecture plays an important part in the overall class content. Material missed due to absence is your responsibility. Attendance is expected for discussion and laboratory. Please contact me before class if an absence is unavoidable.

**Laboratory:** **You cannot receive a grade higher than a C in this course without earning at least 50% of the possible points in the laboratory.** There are pre-lab videos for you to watch on LabFlow as well as a pre-lab quiz to take related to those videos. The lab quiz will be scaled to 20% of the total lab score and the lab report will be scaled to 80% of the total lab score. There are 13 graded experiments and your lowest score will be dropped -so 12 lab reports will be scored. Late laboratory reports will be worth 5 pts if less than one week late and will receive no credit if more than one week late.

**Examinations:** There will be three exams worth 100 pts each given during the semester, plus a final exam. The hour exams test material covered since the previous exam. The final exam is cumulative. All exams except the final will be given during the regularly scheduled lecture time. The dates of the exams are given in the lecture schedule. No make-up exams will be given unless you have prior approval. If your final exam percentage is higher than one of your regular exams, it will replace the score.

**Quizzes:** Four quizzes worth 40 pts each will be given throughout the semester. Quizzes will be given during your discussion class time on Tuesdays. No make-up quizzes will be given. Your best quiz score will replace your worst quiz score. The quizzes will cover lecture material, assigned reading and problems from the end of the text chapters.

**Homework:** There will be seven problem sets assigned throughout the semester, each one worth 10 pts.

**Assignments:** There will be at least three assignments worth a total of 60 pts throughout the semester. These assignments are designed to have you thinking about chemistry in the world around you.

**Problems:** There are problems at the end of each chapter designed to help you understand the material. You should work as many as you feel necessary to understand the material. Periodically, handouts will be provided to you with additional problems.

**Electronic Resources:** A Canvas course site has been set up for our course. You can access it from [www.uwsp.edu/canvas](http://www.uwsp.edu/canvas) and log in with your UWSP log on information. There are resources on this page to help you learn how to use Canvas. Canvas is our learning management system where all our course information is housed. All lecture materials posted on Canvas may only be used by students currently enrolled in the course.

**Grading:** The course grade will be determined by the sum of the points received from the following:

Hour Exams (3 at 100 pts each)	300
Quizzes (4 at 40 pts each)	160
Homework (7 at 10 pts each)	70
Assignments	60
Final Exam	200
Laboratory (12 at 10 pts each)	<u>120</u>
Total	910

The grading scale cutoffs will be as follows:

A $\geq$ 93% - 846 pts	B: 83% - 755 pts	C: 73% - 664 pts
D: 63% - 573 pts	F < 63% - 573 pts.	

Please note that at least 60 points must be earned in the laboratory for a C grade in the course, regardless of the total points received. Grades near a cutoff may be assigned + or – designations.

**Academic Responsibility:** Academic misconduct will not be tolerated. Academic misconduct is defined by the UWSP Handbook Chapter 14.03(1). Anyone who engages in academic misconduct will be subject to disciplinary measures according to the UWSP handbook. The handbook chapter can be found using the following web link: [UWSP14-Final2019.pdf](#)

**Disability Services:** Students with disabilities should contact the Office of Disability Services during the first two weeks of the semester if you wish to request accommodation.

**Religious Beliefs:** Religious beliefs will be accommodated according to UWS 22.03 as long as you notify me within the first three weeks of the beginning of classes of the specific days which you will request relief from an examination or academic requirement.

### A Few Notes

I am looking forward to teaching and learning with you in Chemistry 106! I am providing my schedule for you in case you would like to setup a time to meet that is different than my office hours. I am available to meet with students during my class preparation time depending on the day. In order to help

you learn chemistry, I welcome comments from you throughout the semester. You can contact me by phone, email or talk to me after class. Good luck with the semester!

Professor Laura J. Cole

Fall Semester 2022

	Monday	Tuesday	Wednesday	Thursday	Friday
08:00	Class Prep	Class Prep	Class Prep	105 Lab 04L1 CBB 230	Class Prep
09:00	106 Lec 01 CBB 105	106 Dis 01D1 CBB 105	106 Lec 01 CBB 105		106 Lec 01 105
10:00	Office Hour CBB 412	Class Prep	Class Prep		Class Prep
11:00	Class Prep Research	106 Lab 01L1 CBB 236	106 Lab 01L2 CBB 236	Class Prep	106 Lab 02L3 CBB 236
12:00				Office Hour CBB 412	
13:00	Office Hour CBB 412				
14:00	Class Prep Research	Meeting	Research	Class Prep Research	Meeting
15:00		Office Hour CBB 412			
16:00		Class Prep			

**Chem. 106 - 01**  
**Tentative Lecture & Exam Schedule**  
**Fall 2022**

Week	Topic	Quizzes and Exams
1: Sept. 6 - 10	Introduction & Review Ch. 21: Organic Chemistry	
2: Sept. 12 - 16	Ch. 21: Organic Chemistry Ch. 11: Liquids, Solids & Intermolecular Forces	
3: Sept. 19 - 23	Ch. 11: Liquids, Solids & Intermolecular Forces	Sept. 20: Quiz 1
4: Sept. 26 - 30	Ch. 13: Solutions	
5: Oct. 3 - 7	Ch. 13: Solutions	Oct. 7: Exam I
6: Oct. 10 - 14	Ch. 14: Chemical Kinetics	
7: Oct. 17 - 21	Ch. 14: Chemical Kinetics	Oct. 18: Quiz 2
8: Oct. 24 - 28	Ch. 15: Chemical Equilibrium	
9: Oct. 31 - Nov. 4	Ch. 16: Acids and Bases	Nov. 4: Exam II
10: Nov. 7 - 11	Ch. 17: Aqueous Ionic Equilibria	
11: Nov. 14 - 18	Ch. 17: Aqueous Ionic Equilibria	Nov. 15: Quiz 3
12: Nov. 21 - 23	Ch. 18: Free Energy and Thermodynamics	
13: Nov. 28 - Dec. 2	Ch. 18: Free Energy and Thermodynamics	Dec. 2: Exam III
14: Dec. 5 - 9	Ch. 19: Electrochemistry	
15: Dec. 12 - 15	Ch. 20: Nuclear Chemistry	Dec. 13: Quiz 4
Final Exam Week	Final Exam	Wednesday, Dec. 21: 2:45 - 4:45 pm

**Chem. 106 Lab Schedule**  
**Fall 2022**

Week	Dates	Lab
1	9/6-9/9	Check-in/ <a href="#">Online Safety Lab</a>
2	9/12-9/16	<a href="#">Lab #1</a> : Modeling, Geometry, and Polarity
3	9/19-9/23	<a href="#">Lab #2</a> : Intermolecular forces
4	9/26-9/30	<a href="#">Lab #3</a> : Solutions, Electrolytes, and Concentrations
5	10/3-10/7	<a href="#">Lab #4</a> : Molar Mass from Freezing Point Depression
6	10/10-10/14	<a href="#">Lab #5</a> : Glassware, Techniques, and Measurement
7	10/17-10/21	<a href="#">Lab #6</a> : Iodine Clock Reaction
8	10/24-10/28	<a href="#">Lab #7</a> : Le Châtelier's
9	10/31-11/4	<a href="#">Lab #8</a> : Determination of $K_{sp}$
10	11/7-11/11	<a href="#">Lab #9</a> : Amount of NaOCl in Bleach
11	11/14-11/18	<a href="#">Lab #10</a> : Titration of a Diprotic Acid
12	11/21-11/25	No lab: Thanksgiving
13	11/28-12/2	<a href="#">Lab #11</a> : Buffers
14	12/5-12/9	<a href="#">Lab #12</a> : Voltaic Cells
15	12/12-12/16	Check-out