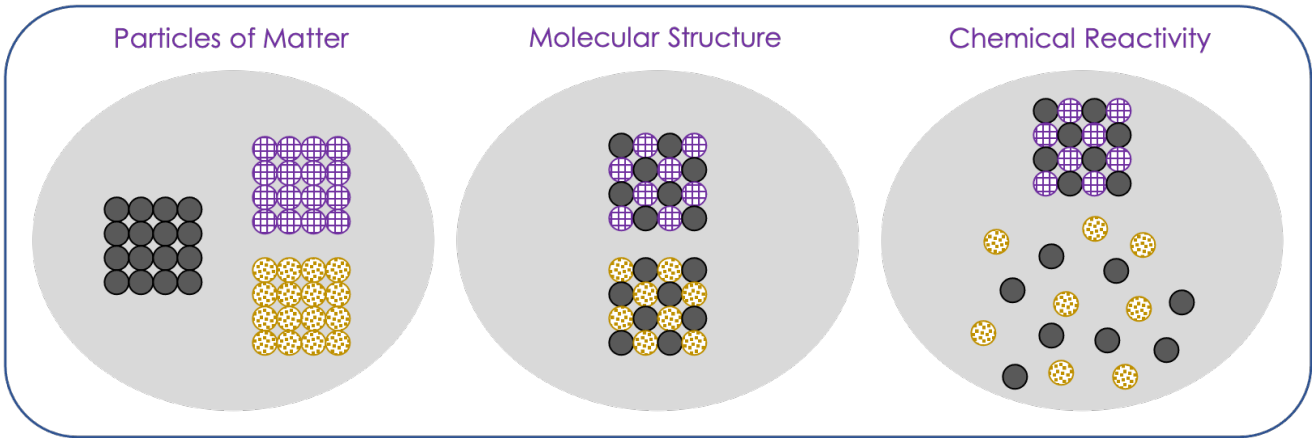
Instructor: Dr. Mondloch **Office:** Virtual M (12-1), W (12-1), F (9-10) **Email:** jmondloc@uwsp.edu

CHEMISTRY 105: Fundamental Chemistry

COURSE DESCRIPTION

Chemistry is the study of matter and the changes it undergoes. Chemistry is everywhere around you and plays an essential role in nearly every aspect of your daily life. In CHEM 105 you will explore some of the fundamental concepts in chemistry including: making and recording measurements; matter & atomic structure, periodic properties, molecules & compounds; chemical bonding & structure; stoichiometry; reactions in aqueous solution; thermochemistry; and gases. A common thread for all these topics is that matter is made up of particles—how those particles interact with each other dictate the properties and reactivity of mater!



LEARNING OBJECTIVES

Upon completion of Chemistry 105 a successful student will: (i) learn how to efficiently work in the laboratory to make, record, and interpret measurements; (ii) develop qualitative and quantitative problem-solving skills; (iii) mastered fundamental principles and theories in chemistry; and (iv) become an independent learner. Because CHEM 105 counts towards the Natural Science credit for the General Education Program a successful student will also be able to: (v) explain major concepts, methods, or theories in the natural sciences to investigate the physical world; (vi) interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques; and (vi) describe the relevance of aspects of the natural sciences to their lives and society. To help you better prepare for homework and exams, more specific learning objectives will be posted on *Canvas* for each unit.

Required Materials

- Textbook. Tro, N. Chemistry: Structure & Properties, 2nd Edition.
- You will need a scientific or graphing calculator.
- You will need access to the platform *Chem101* during lecture/discussion and for homework.
- You will need access to *LabFlow*—our virtual Lab Manual.
- You will need splash-proof Goggles for in-person labs.
- Face Coverings are required in all buildings on campus.

COURSE OUTLINE

Component	Section	Day(s)	Time	Location	Instructor
Lecture	03	M, W, F	11:00-11:50	CBB 105	Mondloch
Discussion	03D1	Th	11:00-11:50	CBB 105	Mondloch
Lab	03L1	T	8:00-10:50	CBB 230	Mondloch
Lab	03L2	M	2:00-4:50	CBB 230	Mondloch
Lab	03L3	T	2:00-4:50	CBB 230	Mondloch
Lab	03L4	W	2:00-4:50	CBB 230	Mondloch

Additional Important dates to keep in mind over the course of the semester, include: (i) Add/Drop (no grade on transcript) 9/14; (ii) Drop (W on transcript) 11/5.

COURSE COMPONENTS

Lecture & Discussion

Each week we will meet in-person for Lecture and Discussion. For each Lecture and Discussion period I will take attendance. Most often a "lecture" will contain several short lectures as well as practice problems. Please bring something to write with, your notes, an electronic device (*e.g.*, smart phone, tablet or laptop) to access *Chem101*, and a calculator to take advantage of this time and help you stay on task for this course. Every other Monday there will be a Quiz to assess your knowledge of the Lecture/Discussion material. A few lectures over the course of the semester will be written as a Guided Inquiry assignment. You will not be required to come to lecture for those assignments.

Topics covered in Chem 105 include: (i) laboratory essentials; (ii) matter & atomic structure; (iii) ionic & covalent compounds; (iv) molecular structure; (v) chemical reactivity & stoichiometry; (vi) aqueous solutions & reactivity; (vii) thermochemistry; (viii) gases.

In the Lab

All students are expected to attend their lab section in-person. In lab you will need to work safely; please bring googles and wear closed toe shoes. If you have long hair, please consider

THE WEEKLY GRIND

Below is a list of tasks that you will need to complete each week to be successful in Chem 105. Actual due dates will be posted on the *Canvas* calendar.

- **Attend lecture and discussion** each M, W, Th, and F (11–12, CBB 105). Don't forget there are Quizzes/Exams every other Monday.
- **Friday.** Complete Homework in *Chem101* by 12 pm (midnight).
- **See Schedule.** Attend lab each week at your designated time period.
- **Sunday.** Complete Pre-Lab Quiz for upcoming week's lab *in LabFlow* by 12 pm (midnight).
- **Sunday.** Complete Lab Report for same week's lab *in LabFlow* by 12 pm (midnight).

Week	Dates	Experiment
1	9/2 – 9/3	No Lab
2	9/7 – 9/10	Check In & Lab Safety
3	9/13 – 9/17	Exp #1. Basic Lab Techniques
4	9/20–9/24	Exp #2. Density & Gravity
5	9/27 – 10/1	Exp #3. Empirical Formulas
6	10/4–10/8	Exp #4. Water Content of a Hydrate
7	10/11–10/15	Exp #5 Intro to Light & Matter
8	10/18–10/22	Exp #6. Spec. Det. of Iron
9	10/25–10/29	Exp #7. Classification of Amino Acids
10	11/1–11/5	Exp #8. Quant. Sep. of a Mixture
11	11/8–11/12	Exp #9. Chem of Copper
12	11/15–11/19	Exp #10. Titration
13	11/22–11/24	No Lab
14	11/29–12/3	Exp #11. Calorimetry
15	12/6–12/10	Exp #12. Ideal Gas Law
16	12/13–12/17	No Lab

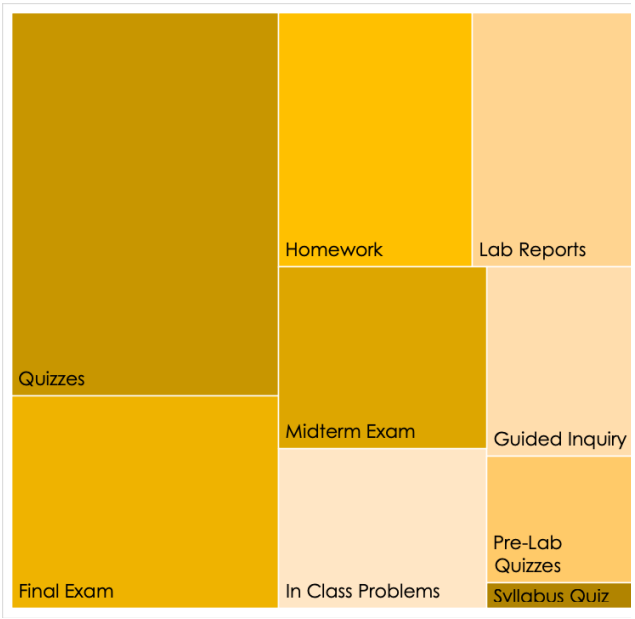
putting it up or back. You can NOT have more than one unexcused absence from lab over the course of the semester—doing so will result in an F for the course. (See the "Attendance" section at the end of this syllabus regarding what constitutes an excused absence.) Don't hesitate to contact me if extenuating circumstances arise.

The lab will NOT be described in detail prior to the start of lab. Therefore, it is your responsibility to come prepared for lab. To help you prepare for lab there is a Pre-Lab Quiz in LabFlow each week. I would recommend reading the lab (*i.e.*, the .pdf of the lab) and watching the relevant videos prior to taking a Pre-Lab Quiz. A list of labs and corresponding dates is highlighted below.

To complete each lab in a timely manner you will need access to the experimental procedure (*i.e.*, the .pdf on LabFlow). This can be done by printing out the .pdf from LabFlow and bringing it to lab or bringing an electronic device to access LabFlow in lab. Please think carefully if you want your electronic device in the lab with water, chemicals, etc… I would strongly encourage you to finish your labs in LabFlow prior to leaving lab for the week.

ASSIGNMENTS

You will complete the following assignments throughout the semester. Details and due dates can be found in *Canvas* and on the *Canvas* Calendar. The squares below give a visual representation on the impact of each assignment on your grade for the semester. Larger squares indicate a larger share of points, while smaller squares indicate a smaller share of points. Keep in mind that many small squares can add up to a larger square.



- The **Syllabus Quiz** (10 pts) will be completed in *Canvas*. This Quiz can be completed by scouring the course syllabus and asking questions during the first week of class.

- There will be six **Quizzes** (45 pts ea, 270 pts total) this semester and they will be administered approximately every other Monday (see the Assignments Calendar at the end of the syllabus for more precise dates). In general, the Quizzes will contain 15 multiple choice questions (3 pts ea, 45 pts total) and you will have 50 minutes to complete them. If you don't perform up to your expectations on a Quiz, you can utilize your Midterm or Final Exam score to replace a low Quiz score, see below for additional details.

- Your **Midterm Exam** (100 pts) will be multiple choice and cumulative. The midterm will be administered during a lecture period. A second chance—the percentage on your Midterm Exam can replace your lowest Quiz 1, 2, or 3 score for if you have NO more than three unexcused absences in lecture prior to the midterm.

- The **Final Exam** (150 pts) will be administered on Thursday 12/16 from 2:45–4:45 (CBB 105). The final exam will be multiple choice and cumulative. 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. A second chance—the percentage on your Final Exam can replace your lowest Quiz 4, 5, or 6 score if you have NO more than three unexcused absences in lecture after the midterm.

- There will be thirteen **Homework Assignments** (10 pts ea, 130 pts total) over the course of the semester. Homework assignments will be submitted in *Chem101* and are due each Friday at 12 am (midnight). The main purpose of the Homework Assignment is to help you prepare for the Quizzes and Exams. Therefore, you will be able to try each homework problem up to 5 times with a 5% point deduction per attempt. In general, it is worth your time and effort to retry problems that you don't answer successfully as similar problems will often appear on Quizzes.

- Each class period there will be **In Class Problems** (2.5 pts ea, 87.5 pts total). In Class Problems will be carried out and submitted in-class utilizing *Chem101*. The main purpose of the In Class Problems is to help you prepare for the Quizzes and Exams. Therefore, you will be able to try each homework problem up to 5 times with a 5% point deduction per attempt. In Class Problems must be completed in class. However, over the course of the semester you will be able to drop your eight lowest scores. If extenuating circumstances arise and you expect to miss a significant portion of time in-class please contact me so that we can discuss an alternative strategy for these assignments.

- There will be three **Guided Inquiry** assignments over the course of the semester (25 pts ea, 75 pts total). The purpose of these assignments is to help you become an independent learner. Therefore I will set aside class time to allow you to do this. Stay tuned over the course of the semester for details regarding these assignments and days off.

- There will be twelve **Pre-Lab Quizzes** (5 pts ea, 50 pts total) and each one will be submitted in LabFlow by Sunday at 12 am (midnight) prior to your lab period each week. I will drop the two lowest Pre-Lab Quiz scores from your grade.

- There will be thirteen **Lab Reports** (10 pts ea, 110 pts total) and each one will be submitted in LabFlow by Sunday at 12 am (midnight) the same week that you complete the lab. I will drop the two lowest Lab Report scores from your grade.

GRADING SCALE

The grading scale for Chem 105 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. To move on to Chem 106 you must receive a grade of C- or better. Your grades will be regularly updated on *Canvas* 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%)

THE FINE PRINT

Communication

- Please make it a habit to check your email and Canvas page daily!

- If you need to miss any component of this course, and ***if you have an excused absence, you must communicate that reason to me via email.*** I need a written record of these requests. If you plan on missing class and it's an unexcused absence, you do not need to contact me.

Extenuating Circumstances

I understand that extenuating circumstances will arise this semester for many different reasons (e.g., illness, family illness, military duty, sports, etc…). Make up exams, quizzes, 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 (including quarantine for COVID). Please bring me authorization from your physician.
(iv) Death in the family. Please bring me some sort of documentation.

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! The following study hints will help you succeed in Chem 105:

(i) Skim relevant text prior to class
(ii) Take notes in class
(iii) Organize notes, comprehend notes, and commit definitions to memory (you need to be able to speak the language of chemistry)
(iv) Keep a running list of potential exam topics
(v) Work the in-class problems
(vi) Do the homework problems daily, don't put them all off until the last minute

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. More information can be found at https://www.uwsp.edu/datc/Pages/default.aspx.

Free Tutoring with Dr. M.

You might be wondering how to schedule office hours with Dr. M.? I will hold free tutoring sessions (aka office hours) on M (12-1), W (12-1), F (9-10). Free tutoring can be scheduled via the "**Free Tutoring with Dr. M.**" link in *Canvas*. Tutoring sessions will need to be scheduled at least 24 h prior to your preferred time. After booking you will receive an email or text confirmation (your choice) along with a Zoom link to your free tutoring session. To access the meeting, you will need to install Zoom on at least one device (phone, tablet, or computer). Instructions to do this can be found at the following link.

https://www.uwsp.edu/infotech/Pages/Tutorials/Zoom/Zoom.aspx

UWSP Tutoring Services

The Tutoring-Learning Center (TLC) offers **FREE** tutoring to support you in your STEM classes. The tutors are UWSP students who have done well in their classes and who are here to share their successful study habits and content knowledge to help others succeed. Discussing concepts and practicing problems together clarifies and solidifies knowledge, and the tutors are eager to study with you. If you have questions about the schedules or would like to make an appointment, please visit the TLC in ALB 018 (library basement), email (tlctutor@uwsp.edu), or call (715) 346-3568.

What	Location	Schedule	Cost
STEM Drop-In Tutoring	CBB 190	No appointment needed – stop by when tutors are available: https://www.uwsp.edu/tlc/Pages/dropInTutoring.aspx.	Free
STEM One-on-One Tutoring	ALB 018	By appointment. Visit ALB 018 (library basement) to make a request or complete online request form here: https://www.uwsp.edu/tlc/Pages/request-math-science-tutoring.aspx.	Free

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 can be found at the following link http://www.uwsp.edu/dos/Pages/Academic-Misconduct.aspx.

FACE COVERINGS

In response, effective Monday, Aug. 9, **all students, employees and visitors to any UW-Stevens Point campus or facility will be required to wear face coverings when inside campus buildings and enclosed spaces with others outside of your household (e.g., in a UWSP vehicle)**. This policy is in effect until further notice. See the chancellor's mask mandate**.**

This decision was made in consultation with county public health officials. UW-Stevens Point continues to follow the guidance of local, state and federal health experts. The Centers for Disease Control and Prevention recently updated guidance for fully vaccinated people.

ACCESS TO CHEM101

To access *Chem101* visit http://www.chem101.co and follow the instructions under the module labeled "Introduction to *Chem101*". Our class code is **JHQM2T** which will grant you trial access until September 17th, after which you will need to activate (pay for) *Chem101*. Payment can be made with a credit card (cost $25) directly on the *Chem101* website/app.

ACCESS TO LABFLOW

To access *LabFlow* visit www.labflow.com and follow the instructions on *Canvas* under the module labeled "Introduction to *LabFlow*". Your enrollment code depends on your section lab section number. Your enrollment code will grant you access to *LabFlow* until September 17th, after which you will need to activate (pay for) *LabFlow*. This can be done on the *LabFlow* website (cost $30) or you can purchase it with your student account (cost $42.85) through the bookstore.

Component	Section	Day(s)	Time	**Enrollment Code**
Lab	03L1	T	8:00-10:50	**80786**
Lab	03L2	M	2:00-4:50	**80787**
Lab	03L3	T	2:00-4:50	**80788**
Lab	03L4	W	2:00-4:50	**82242**