

## Welcome to Chem 1072H!

Please fill out the online survey [HERE](#) before the first day, about you and how I can help you succeed in this class

**The course:** This course is a continuation of 1071H. Together with the accompanying lab class, these courses are designed to prepare you for a major in science, including chemistry, engineering, the health sciences, and more. This course is a survey of chemical principles, and covers many topics. The major concepts of Chemistry 1072H include rates and mechanisms of chemical reactions, nuclear reactions, equilibrium reactions, acid-base equilibria, precipitation and complexation reactions, thermodynamics, electrochemistry, transition metal compounds and coordination compounds. Each lecture/lab pair fulfills the core physical science requirement. My goals for this course are to help you develop your skills in understanding complex issues, finding credible information, analyzing that information, problem-solving, and drawing reasonable conclusions based on facts. This course will develop these skills and prepare you to be an informed citizen and life-long learner.

**Prerequisites:** CHEM 1071H; Honors student or Honors Office permission; concurrent registration in the laboratory course. The lecture material will begin with Chapter 16 of the text by Silberberg and Amateis. You should be familiar with the material covered in Chapters 1–13 and 15.

**Instructor:** Professor Renee Frontiera, [rrf@umn.edu](mailto:rrf@umn.edu), Smith 233. Please feel free to call me Renee or Professor Frontiera, whatever is more comfortable for you. This is my second time getting to teach this class (yay!), so I'm sure there will be some aspects that I will need to figure out as we go. If you are confused about something, please let me know.

**MPACT scholar:** Dr. Michael Trenerry, [trene004@umn.edu](mailto:trene004@umn.edu)

**Course format and COVID safety:** The course will be held in Smith 231, MWF, 9:05-9:55. I am committed to a safe classroom environment, and every component of the course will be offered synchronously online. Please do NOT come in if you feel sick. The zoom link for ALL class activities is:

<https://umn.zoom.us/j/94622670193?pwd=b25kL0JVbHVFbjdUQVliUCtWcWVsUT09>

**Office hours:** Wednesdays 10-11am in Smith 233 and at [zoom link](#), Wednesdays 8-9pm at [zoom link](#)

**Required text:** “Chemistry: The Molecular Nature of Matter and Change” by Martin S. Silberberg and Patricia G. Amateis (McGraw Hill, 9th Edition, 2021), packaged with CONNECT. This is the same text that you used in CHEM 1071H. Note that the publisher’s online homework system, CONNECT is required and is provided in the package sold at the University Bookstore in Coffman Union.

**Online homework (CONNECT):** Homework will be given using the publisher’s online homework system, Connect, and will count 10% toward your course grade. Each homework

assignment will cover recently completed material, by chapter. You must complete 80% of the questions in each homework assignment correctly to receive full credit for homework at the end of the semester. Any score below this mark will earn a prorated portion of credit. You must set up your Connect account correctly to get credit for your online homework. You will need to register on the Connect system for access to materials pertinent to our section.

To set up your Connect account:

1. Go to the Connect web page for this course at

<https://connect.mheducation.com/class/r-frontiera-chem-1072h---spring-2023>

2. Choose “register now”.

3. Enter your U of M email address. **You will only receive credit if you use your U of M email address that ends with ...@umn.edu. DO NOT USE AN ALTERNATE EMAIL ACCOUNT.**

4. Select one of the following:

(a) Enter the access/registration code that came packaged with your textbook

(b) Choose “free trial” (3 weeks) if you want to test out the course or are waiting for financial aid.

(c) Choose “buy online” to purchase

i. Connect – online homework system only – use as a companion for your used textbook.

ii. Connect PLUS – online homework system AND the e-book – use this option if you don’t want to purchase a hard copy of the textbook.

5. Fill in your correct contact information, click “I agree”, and then click “submit”.

6. You should get a message that tells you your registration was successful.

**Additional practice problems:** If you want more practice than the online homework problems, please see the list of problems from the end of each text chapter listed in the class schedule.

**Exams and grading:** There will be four 50-minute exams and one 2-hour final in Chem1072H. These will be administered **during class time**. If you cannot make it in person, please contact me as far in advance as possible so we can work out an alternative. The exam schedule is:

First midterm: Monday, February 6, 9:05–9:55 a.m. (Smith 231)

Second midterm: Monday, February 27, 9:05–9:55 a.m. (Smith 231)

Third midterm: Monday, March 27, 9:05–9:55 a.m. (Smith 231)

Fourth midterm: Monday, April 17, 9:05–9:55 a.m. (Smith 231)

Final exam: Monday, May 8, 1:30 p.m.–3:30 p.m. (Smith 231)

Grades will be calculated as follows:

Midterm exams 1–4: 15% each

Final exam: 30%

Online homework: 10% (using Connect)

Final letter grades will be assigned based on the overall cumulative score. The following cut-offs will be used for letter grades:

A: 87%  
A-: 84%  
B+: 80%  
B: 73%  
B-: 66%  
C+: 62%  
C: 55%  
C-: 50%

If you earn over 92% on the final you will receive an automatic A for the course (I do not recommend relying on this approach to earn an A, but do want to reward you for a concrete knowledge of chemistry!) If you are registered for this course on an S/N basis, a grade equivalent to C- on the A-F scale will be required to receive an "S". A D+ or below will receive an "N". Many programs or transfer courses do not like S/N grades or will assume that they are the minimum possible grade. Requests to change grading basis after the University deadline will not be approved. **No exam, including the final exam, may be taken at any time other than that which has been scheduled.** If you have conflicts with any of the scheduled times, you should resolve them now or drop the course.

No make-up exams will be given. In the case of a true emergency (documentation within 1 week is required), a student may be excused from one midterm exam and have a substitute score recorded based on the average of the other midterms. If the unforeseen need to miss more than one midterm exam comes up, you need to discuss the situation with the instructor as soon as possible. In the case of illness or University-sponsored activities that require the student to be out of town, it should be possible to take the exam with Proctorio. Please let Renee know about such conflicts as soon as possible so arrangements can be made.

**Exam Regrades:** Exam regrade requests must be submitted to the instructor by the end of the class period after that at which the exams were returned (i.e., if exams were returned on Wednesday, the regrade request must be submitted by the end of the class on the following Friday).

**Incompletes:** An I (incomplete) grade is only possible if a student is doing satisfactory work (C-level or better) and cannot take the final exam due to extreme, documented circumstances. The university requires a signed agreement involving the instructor, student, and third party which must be completed before final grades are submitted. Provisions for making up the final exam will be arranged on a case-by-case basis. Incompletes will not be granted if a student has missed earlier exams, or is not passing based on the work up to the final.

**Withdrawals:** I sincerely hope that every student will successfully complete this course. If, however, it becomes necessary to drop the course, you must officially withdraw from the course following the rules for your college (CSE, CLA, CBS, etc.). Before withdrawing, I urge you to come and speak with me. Your situation may not be as bad as you think it is.

**Calculators:** Every student should have a calculator that calculates all arithmetic and trigonometric functions, logarithms, and exponentiation. The calculator must also be capable of displaying numbers in scientific notation (e.g.  $6.02 \times 10^{23}$  or  $6.02E+23$ ), because many of the numbers we deal with in this course will be too small or too large to input or display any other way.

**Approximate course schedule:** (subject to change depending on what we want to talk about!)

Chapter 16: Jan 18 - 30

Chapter 17: Feb 1 - 13

Chapter 18: Feb 13 - 22

Chapter 19: Mar 1 - Mar 17

Chapter 20: Mar 20 - Mar 31

Chapter 21: Apr 3 - 12

Chapter 23: Apr 19 - Apr 28

**Student Conduct Code:** As a student at the University you are expected to adhere to Board of Regents Policy: Student Conduct Code. To review the Student Conduct Code, please see: [http://regents.umn.edu/sites/default/files/policies/Student\\_Conduct\\_Code.pdf](http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf).

**Scholastic Dishonesty:** The Board of Regents Student Conduct Code states that, “Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.” The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. The policy in this course is zero tolerance. The minimum action taken in a case of scholastic dishonesty in any portion of the work in this course will be a grade of F for the course.

**For University-wide policies, please see the following page:**

<https://policy.umn.edu/education/syllabusrequirements-appa>

This webpage covers eleven policies related to: Student Conduct Code; Use of Personal Electronic Devices in the Classroom; Scholastic Dishonesty; Makeup Work for Legitimate Absences; Appropriate Student Use of Class Notes and Course Materials; Grading and Transcripts; Sexual Harassment; Equity, Diversity, Equal Opportunity, and Affirmative Action; Disability Accommodations; Mental Health and Stress Management; Academic Freedom and Responsibility.

**DRC accommodations:** I am happy to make any reasonable accommodation. Please make an appointment with the Disability Resource Center as soon as possible, and share your letter with me right away so that we can make appropriate arrangements.

**Quick Guide to Proctorio:** I know many of you strongly dislike Proctorio, and I fully agree with you. However I want to have an option for people to take the exam out of our classroom when needed. Proctorio will record your exam taking session and share that recording with your instructor. Link to using Proctorio: <https://it.umn.edu/proctorio-student-guide>

The most important points:

You must use Chrome as a browser.

You must install the Proctorio Chrome Extension

<https://getproctorio.com/>

For the exam: After the Proctorio Chrome Extension has been installed, go to Canvas in Chrome. Under Online Exams, click on the appropriate exam and follow the instructions. No password is required in Proctorio. Once you start this exam, you must finish it.

Proctorio Troubleshooting:

It's asking me for a password or an access code.

You don't need a password or access code.

- Make sure you are using the Google Chrome web browser
- Close all Google Chrome browser windows, reboot your computer and then go directly to Canvas and do a fresh-login with your UMN account ONLY (e.g., do not be logged in with a personal gmail account)
- You may need to reinstall the extension by following the directions through the link above (Read this information on Proctorio/Student tutorial - page 2)

If this doesn't help, contact Proctorio:

- Click Live Chat (gray shield in upper right of browser) and connect with support personnel to get help.
- Call or email Proctorio Support: 1-877-687-6411, [support@proctorio.com](mailto:support@proctorio.com)

**Help with this class is available, and I want you to succeed!**

**Instructor:** Asking questions during class and office hours is a fantastic way to challenge yourself to understand the material. This is a relatively small class, and I hope to get to know all of you personally, so come on by!

**Free tutoring:** For students in the honors program, there will be weekly hours for chemistry-specific tutoring available in Middlebrook Hall. Specific hours and tutors will be posted on the Honors web site at the start of the semester. You are also welcome to use the General Chemistry tutoring facilities in Smith 124. Additional tutoring services are available at the Smart Learning Commons (<http://smart.umn.edu/index.html>).

Please Note: The walk-in tutorial is not intended as a routine means of getting your homework problems solved. Many students fall into the trap of seeking help too soon, before they have put sufficient thought into a problem by themselves. The result is that they never learn to solve problems on their own, and the consequences are significant on exams. Thus, while you are not discouraged from using the tutor room, you are discouraged from over-using it. Tutors are instructed NOT to simply do problems for students, but rather to ask questions that will help

them see how to do the problems themselves. They may also ask to see evidence that you have tried a particular problem yourself. Generally, then, it's a good idea to bring along the work you have done on a problem. Seeing this will help the tutor figure out how best to help you. If you have any questions about this, please feel free to come chat.

**Study groups and homework:** You are STRONGLY encouraged to work together on homework in whatever way you want. If I can facilitate setting up online study groups, please let me know.

**General Chemistry Director:** If you have concerns or problems regarding the lecture portion of this course that you would like to discuss with someone other than your instructor, contact Dr. Michelle Driessen, the General Chemistry Director, in 113 Smith Hall (mdd@umn.edu, 612-624-0062).

### **TIPS FOR STUDY SUCCESS:**

There is lots of good scientific literature showing that it takes multiple exposures to new material to really learn it. This is why cramming doesn't work! Spending small amounts of time on this class several days a week is much more effective than an all-nighter. Some suggestions:

1. Read the textbook BEFORE class. Think about what is confusing, and be prepared to ask questions as we go through it together in class.
2. On the same day after class, copy over your notes in your own words. Pay attention to concepts that aren't clear and mark them to revisit.
3. Work out problems WITHOUT looking at the answer key. If you are stuck, try a couple different approaches. Go back and look at the book. Find some reliable online resources (Khan, wikipedia, etc). If you still can't figure it out, mark it and come back later. Your brain might just need some time to process it in your subconscious!
4. Talk with a classmate and try to explain challenging concepts to each other.
5. Get help from office hours or tutors.

### **SUCCESS ON EXAMS:**

One of the most common student complaints concerning exams is that the exams do not resemble, or are harder than the homework problems. There are many types of problems in chemistry, such as the calculation of the molarity of a solution, that are important, straight forward and are commonly encountered stated in a familiar way. However, to try to determine whether a student understands a concept or is relying on memorization, your lecturer needs to ask the problem in a different way - and one which may confuse you. To help avoid confusion, treat the numerical problems you work in the following way:

1. Work the problem as written and determine the answer if possible. Note whether this is one of several very similar problems that were assigned previously.

2. Think about the problem and your answer

- in your own words, what does the problem ask?
- in your own words, what does the answer mean?
- try to restate the problem at least two different ways.
- can you make-up a similar problem? (This is not always easy or realistic to do.)
- can this problem be worked backwards? (Knowing the answer, can you calculate any of the given pieces of data?)
- can you think of a use for the information contained in the problem?
- finally, can you help another student to understand and work this problem? Study in a small group is helpful in this regard.

3. DANGER! If the working of a problem by the professor, a tutor, a friend or the solutions manual "makes sense", this does not necessarily mean that you have a good understanding of the problem and that you can readily work other problems which involve these concepts. The most reliable way to understand a problem is to work it completely and correctly yourself and to then take the time to reflect on what you have done as described above.

4. Rereading the text several times may not be as useful in chemistry as in other subjects. When study time is limited, it may not leave time to answer questions and work problems at the end of the chapter. You might try:

- reading the text thoughtfully once (before it is discussed in lecture)
- reviewing the notes after each lecture
- working problems at the end of the chapters and rereading the text as needed to help understand the problems

5. When working problems on a multiple-choice test, it is useful to eliminate answers you know are incorrect as quickly as possible. This increases your chances of making a correct "educated" guess, if you are not sure of the correct answer.