CHEM 1071H (001) Honors Chemistry I (Fall 2021)

Instructor: Prof. Lee Penn, Smith Hall 225, rleepenn@umn.edu

Welcome to the U! I'm excited to meet you in our classroom!

This file represents a reformatted version of the syllabus posted in canvas.

The formatting here might appear a little bit strange. Each section of this syllabus had its own canvas page, and content was organized so that the most frequently accessed pages were easy to find (e.g., schedule and lecture navigator).

The Course: The main themes of Chemistry 1071 include an advanced introduction to atomic theory; periodic properties of the elements; behavior of gases, liquids, and solids; the first law of thermodynamics; molecular/ionic structure and bonding; aspects of organic chemistry, spectroscopy, polymers and energy sources. A student may ask, “Why is this course considered an important component of my liberal education?” A liberally educated person is one who can understand complex issues, find credible information, analyze that information, problem-solve, and draw reasonable conclusions based on facts. This course will develop these skills and help prepare you to be an informed citizen and lifelong learner.

Text: Chemistry – The Molecular Nature of Matter and Change (9e, Silberberg and Amateis)
ISBN (bound edition) 978-1-260-24021-4
E-book accessed through CONNECT (see below)

Prerequisite: Honors student or Honors Office permission. Inasmuch as this is an honors course, a certain amount of prior knowledge will be assumed, and the lecture material will begin with Chapter 5 of the text by Silberberg and Amateis. You should be familiar with the material covered in Chapters 1–4, and you are encouraged to read these chapters and do practice problems to test your readiness and refresh your memories; this material is fundamental to any continued study of chemistry and will be incorporated into the exams.

I am committed to fostering a diverse welcoming climate for chemistry 1071H. Further, I strive to integrate diversity and inclusiveness into my work and daily life. This ongoing work is essential to developing and maintaining a positive and welcoming climate for all students in our course (and on our campus). I will work hard to create and foster a welcoming and affirming climate for students who hold various identities. If you have concerns / comments, please feel absolutely invited to send me a message. Once the semester starts, I'll all an anonymous survey here. Using this, you can send me comments anonymously.

The Lecture Video Navigator (asynchronous and organized by chapter) page contains the lecture videos used during fall 2020. If you are feeling unwell, please skip class AND watch the videos for the content you missed. I care about YOUR health and also MY health and the health of everyone around us. I will not come to class if I'm feeling unwell. Instead, I will come to class via zoom session. I expect students to SKIP CLASS if they are feeling unwell and will THANK YOU for staying home when you are not well. ALSO, these lectures could be useful if you miss
something during class, if you'd like to hear something explained again, or if you miss class due to athletics or other reasons.

**Want to attend class virtually?** I'll run a zoom session for every class. I can't promise great quality, but I will do my best to make it as good as possible. ALL THE CONTENT is contained on the lecture video navigator page, which contains asynchronous videos organized by chapter. Any student can complete this course using a 100% virtual modality. The main goal for virtual students is to keep an eye on the announcements so you know what each quiz will contain.

**Official syllabus statement:** Students are responsible for all information disseminated in class and all course requirements, including deadlines and examinations. The instructor will specify whether class attendance is required or counted in the grade for a class. FOR THIS CLASS, I do not take attendance for in person class.

Problems for Problem Solving Sessions- Honors students often want extra practice. During fall 2020, students attended live problem solving sessions. I decided to make these problems available for the fall 2021 class as well.

Some classes will be held using a FLIPPED format. That means, the HOMEWORK will be watching a handful of lecture videos and CLASS TIME will focus on problem solving. That's the way we'll go for drawing LEWIS STRUCTURES and the shapes of molecules!

**Everyone is required to wear a mask during class, unless you have a documented disability that prevents you from wearing one (if you are in that category, please contact me asap so I can help you get connected with the disability resource center).**

**There will be no eating and no drinking in the classroom (this includes the short period before class starts and the short period while folks are leaving the room). This is because eating/drinking requires people to remove their masks in order to eat or drink. Of course, if you need a quick sip of something, that's fine (I'm not a monster, I promise, and I might even need to do the same). Also, if you have a disability-related need for food and drink during class, please share that information with me. Regardless, please take your quick sip AIRPLANE STYLE: remove your mask, sip, replace your mask as quickly as possible. OR, you are welcome to get up and step outside to eat or drink and then return to the classroom.**

**Office / Student Hours – determined by survey and posted on the canvas website.**

3 office hours per week.

**Course Grading**

The final course grade will be determined by the combined performance on six quizzes, the final exam, and your connect homework. Each of these will be weighted with the following percentages in the determination of the final grade:

Quiz Zero (practice quiz) = 5% (you get full credit for taking the quiz, regardless of your "score")
Quizzes 1-6 = 10% each
Final exam = 17.5%
Connect Homework = 17.5%
Your final connect homework average (counting only your highest scoring attempt submitted before the due date for each assignment) will count as 17.5% of your final course grade.

Grade cutoffs:
90% and higher A
85% to the next A-
80% to the next B+
75% to the next B
70% to the next B-
65% to the next C+
60% to the next C
55% to the next C-
50% and higher D

Grading and Transcripts: The University uses plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:
A 4.000 Represents achievement that is outstanding relative to the level necessary to meet course requirements
A- 3.667
B+ 3.333
B 3.000 Represents achievement that is significantly above the level necessary to meet course requirements
B- 2.667
C+ 2.333
C 2.000 Represents achievement that meets the course requirements in every respect
C- 1.667
D+ 1.333
D 1.000 Represents achievement that is worthy of credit even though it fails to meet fully the course requirements
S Represents achievement that is satisfactory, which is equivalent to a C or better.

For additional information, please refer to http://policy.umn.edu/education/gradingtranscripts.

Note: There are no extra credit assignments in CHEM 1071H.

HOMEWORK:

Homework: Combination of required connect homework problems and RECOMMENDED end-of-chapter problems (list available on canvas course site) from the textbook and RECOMMENDED problems from the fall 2020 problem solving sessions.
**CONNECT** is the homework system we'll use during fall 2021. It's fiddly, but I've seen very positive results with using it. Students who do the homework consistently DO BETTER in this course.

https://connect.mheducation.com/class/l-penn-fall-semester-2021 (Links to an external site.)

How to register within Connect:

http://video.mhhe.com/watch/E5hiV5KB7h3Fqav5Yh4wVp (Links to an external site.)?

The first homework covers chapters 1-4, which students need to complete by 9am on 13 Sept 2021. These chapters will not be covered during class. This covers material folks should have seen during their high school chemistry class. Take your time in these chapters! Start NOW if you want to! Reviewing chapters 1-4 will help set you up for success in chem 1071H. We start with chapter 5 on the very first day of class, and that chapter focuses on GASES (PV=nRT and beyond).

If it's been a while since you've taken chemistry, this introductory material (chapters 1-4) will help refresh your knowledge. If you're just NERVOUS about chem 1071H, reviewing this introductory material will build your confidence! If this homework assignment seems tremendously difficult -- see me asap please! Let's talk!

**We will start lecture material with chapter 5.**

For each chapter, a series of problems have been chosen to help you understand the concepts and **practice** the material. My experience teaching this course has shown me that students who practice problems do better! There are a lot of problems! What's listed in the table below represents my recommendation for practicing chemistry problems. If you're struggling, the best use of your time is to practice **more** problems! Come meet with me to talk about how to best spend your time if you feel unsure. I'm very happy to talk to you about study strategy etc....

I recommend you do the problems through the online CONNECT system (worth 15% of your final grade) AND the recommended book problems according to the table below AND the problems for the problem solving sessions (some of those actually are based on connect problems and end of chapter problems).

***Your final connect homework average (counting only your highest scoring attempt for each assignment) will count as 17.5% of your final course grade -- that's the SAME as with the final exam!***

**Group work is not only acceptable but is encouraged!** That's worth repeating -- WORK TOGETHER ON HOMEWORK! You are invited to work together on the CONNECT homework problems AND on the recommended book problems AND on the problem solving session problems. However, everyone needs to be sure they can complete problems independently in preparation for quizzes and the final exam.
A list of recommended book problems by chapter is posted on the canvas course website. These numbers are based on Silberberg, Chemistry, 9e.

QUIZ CONTENT: Quiz content will be posted in the "announcement thread" on quizzes. Please go there! I will update the thread by the Monday before each quiz.

Quizzes and the final exam will be administered through canvas.

Quiz instructions will be updated regularly.

Check here (link provided on the canvas course website) for updates before every quiz please!

There will be one practice quiz, six "real" quizzes, and one Final exam:

E-Proctored Exams -- Advance preparation required for online exams

For every quiz, you'll NEED a whiteboard (fully erased before and at the conclusion of your quiz / exam), a handheld mirror, a whiteboard marker, some kind of eraser (tissues work too), and your scientific (but NOT graphing) calculator. More details about preparing for e-proctored quizzes is provided on the canvas course website.

The formula sheet shown at the bottom of every electronic quiz and the final exam is posted on the course website.

All exams in this course will be e-proctored in a quiet location of your choosing.

Proctorio Fact Sheet for Chemistry (Links to an external site.)

For chem 1071H -- quiz zero is your set up quiz. You can take this quiz at any time in order to test your set up. I recommend loading the quiz before each "real" quiz, to make sure you're good to go. If you complete quiz zero one time before class starts on 13 Sept 2021, you receive FULL CREDIT for having taken that quiz, regardless of the score recorded in canvas. Take this quiz as many times as you need, in order to feel confident that you won't have troubles during "real" quizzes.

Proctorio Student Information Pages (prepared by the information technology folks) Links to an external site.

13 Sept 2021 (Due First MONDAY): Quiz ZERO - quiz on chapters 1-4.
You will practice using the electronic testing system.
You will receive full credit for this quiz as long as you do it.
Your performance on the questions will not be graded.

If you have a testing accommodation related to a documented disability - please let me know!
For extended time, I can set canvas to grant you the extended time easily. For quiet space accommodations - you're in control of this because of the remote proctoring procedure. You select the location of your exam -- your private room, a reserved room in the library, wherever
fits your needs. If you’re having trouble finding a good quiet space, let me know. I can help you. For other accommodations, we should meet to discuss!

**Missed quizzes and/or final exam:** A student can be excused from one quiz for a true emergency, serious illness, or University sponsored activity. The student should contact the instructor as soon as circumstances allow, and appropriate documentation must be provided. If the circumstances are deemed as appropriate for an excused absence on the quiz, the unweighted average score of all other quizzes will be used in place of the missed quiz. If circumstances lead to a student missing more than one quiz, the student should immediately schedule a meeting with the instructor to discuss options.

Legitimately excusable absences include illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see: [http://policy.umn.edu/education/makeupwork](http://policy.umn.edu/education/makeupwork) Links to an external site.

In the case of University sponsored activities that require the student to be out of town, it may be possible to slightly modify the quiz time. Please see me *as soon as possible* so arrangements can be made.

**SCHEDULE – chapters listed correspond to our text (Chemistry 9e)**

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>No class on Monday 6 Sept 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Sept</td>
<td>Chapter 5 – Gases and the Kinetic-Molecular Theory</td>
</tr>
<tr>
<td>13 Sept</td>
<td>MONDAY -- quiz zero is due before class starts!</td>
</tr>
<tr>
<td></td>
<td>Finish Chapter 5 and start Chapter 6 – Thermochemistry: Energy Flow and Chemical Change</td>
</tr>
<tr>
<td>20 Sept</td>
<td>Finish Chapter 6 and start Chapter 7 - Quantum Theory and Atomic Structure</td>
</tr>
<tr>
<td></td>
<td>Quiz One Friday</td>
</tr>
<tr>
<td>27 Sept</td>
<td>Chapter 7 – Quantum Theory and Atomic Structure</td>
</tr>
<tr>
<td>4 Oct</td>
<td>Chapter 8 - Electron Configuration and Chemical Periodicity</td>
</tr>
<tr>
<td></td>
<td>Quiz Two Friday</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>11 Oct</td>
<td>Chapter 9 – Models of Chemical Bonding</td>
</tr>
<tr>
<td></td>
<td>Chapter 10 – The Shapes of Molecules</td>
</tr>
<tr>
<td></td>
<td>Great acapella song related to this chapter's content:</td>
</tr>
<tr>
<td>18 Oct</td>
<td><a href="https://www.youtube.com/watch?v=f8FAJXPBdOg">https://www.youtube.com/watch?v=f8FAJXPBdOg</a> (Links to an external site.)</td>
</tr>
<tr>
<td></td>
<td>Quiz Three Friday</td>
</tr>
<tr>
<td>25 Oct</td>
<td>Chapter 11 – Theories of Covalent Bonding</td>
</tr>
<tr>
<td>1 Nov</td>
<td>Chapter 12 – Intermolecular Forces: Solids, Liquids, and Phase Changes</td>
</tr>
<tr>
<td>8 Nov</td>
<td>Finish Chapter 12 and [Nanotechnology](not in text)</td>
</tr>
<tr>
<td>15 Nov</td>
<td>Finish Chapter 12</td>
</tr>
<tr>
<td></td>
<td>Quiz Five Friday</td>
</tr>
<tr>
<td>22 Nov</td>
<td>Start Chapter 13 – The Properties of Mixtures: Solutions and Colloids</td>
</tr>
<tr>
<td></td>
<td><strong>Happy Thanks Giving Break!</strong></td>
</tr>
<tr>
<td>29 Nov</td>
<td>Finish Chapter 13, start Chapter 15 – Organic Compounds and the Atomic Properties of Carbon</td>
</tr>
<tr>
<td>6 Dec</td>
<td>Finish Chapter 15 and [Green Chemistry](not in text)</td>
</tr>
<tr>
<td></td>
<td>Quiz Six Friday</td>
</tr>
<tr>
<td>13 Dec</td>
<td><strong>Last Day Of Instruction for Fall 2021 is Wed, Dec 15, 2021</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Course overview and prep for Final exam</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Final Exam (24 hour window):</strong></td>
</tr>
<tr>
<td></td>
<td><strong>OFFICIAL EXAM TIME is 1:30 to 3:30 p.m., Monday, December 20</strong></td>
</tr>
<tr>
<td></td>
<td>The Chem 1071H final exam window: SUNDAY 19 December at 3:30pm to MONDAY 20 December at 3:30pm. The time limit will be FOUR HOURS. It's designed to be a less-than-2-hour exam.</td>
</tr>
</tbody>
</table>
SYLLABUS: Important Policies and Resources

**LAND ACKNOWLEDGMENT:** The University of Minnesota Twin Cities is built within and continues to occupy the traditional homelands of the Dakota people. It is important to acknowledge the peoples on whose land we live, learn, and work as we seek to improve and strengthen our relations with our tribal nations.

We also acknowledge that words are not enough. We must ensure that our institution provides support, resources, and programs that increase access to all aspects of higher education for our American Indian students, staff, faculty, and community members.

From [https://cse.umn.edu/college/diversity-and-inclusion-opportunities](https://cse.umn.edu/college/diversity-and-inclusion-opportunities)

**Lee Penn's Ally/Accomplice Statement:** I strive to serve as an effective Ally/Accomplice/Advocate for students who hold marginalized identities. I am available to listen and support you in a safe and confidential manner. I can help connect you with resources to help address barriers that may interfere with your academic and social success on campus as related to diversity, access, or safety. My goal is to help all students to be successful and to maintain a safe, accessible, and equitable campus.

You have only so many matches to burn in a given day.... My goal is to promote a classroom climate in which you spend your matches on chemistry and getting to know your peers. If you are burning matches due to experiencing bias and/or discrimination in our class or elsewhere at the U of MN, please feel 100% welcome and invited to come see me (via zoom -- possibly in real life). I will do my utmost to help reduce/eliminate those barriers and connect you with quality resources.

**Equity, Diversity, and Equal Opportunity:** The University policy on equity, diversity, and equal opportunity can be found at: [http://regents.umn.edu/sites/default/files/policies/Equity Diversity EO AA.pdf](http://regents.umn.edu/sites/default/files/policies/Equity Diversity EO AA.pdf)

**COVID policy statement:** Please follow all University policy related to COVID-19. If you are feeling at all unwell, please do not attend in person class, lab, or office hours. IMMEDIATELY contact me, your TA, your advisor... so that we can work out a plan to keep you on track and/or help you make up missed work.

MORE INFORMATION CAN BE FOUND ON OUR CHEM 1071H COVID PAGE.

**Issues with your Instructor:** On occasion you may have a concern or problem regarding this course. I am very willing to discuss this with you. If, however, you wish to discuss it with someone other than your instructor, please contact Prof. Michelle Driessen, the director of the general chemistry program. You may e-mail her at [mdd@umn.edu](mailto:mdd@umn.edu) to arrange for a meeting or discuss via email. She will serve as a mediator in helping us resolve the issue.
Overlapping & Back-to-Back Courses: Enrolling in overlapping or back-to-back courses that does not allow enough travel time to arrive at our class meetings on time is prohibited. For more information, please see: http://policy.umn.edu/Policies/Education/Education/OVERLAPPINGCLASSES.html. Links to an external site.

With virtual instruction, this is less of an issue. If you have an in person class that makes it difficult to get from your online class to your in person class -- please visit https://studyspace.umn.edu. Links to an external site. to find space for "attending" your online class at a location that enables you to arrive at your in person class on time. Unused classrooms will be available as study space, with appropriate social distancing and masking rules in place. If you’re having trouble figuring this out -- let me know -- I have some ideas!

Teaching & Learning -- Appropriate Student Use of Class Notes and Course Materials: The materials provided in this course are intended only for the students officially enrolled in this section and are to be used to learn and practice the course material. Disseminating class notes, videos, exams, etc... beyond our chem 1071H fall 2020 classroom community or accepting compensation (in the form of cash or in trade, such as access to a study website) undermines instructor interests in their intellectual property while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community and are not allowed. For additional information, please see: http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html

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.

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.” For additional information see the student conduct code at http://regents.umn.edu/sites/default/files/policies/Student Conduct Code.pdf. 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.

Prof. Penn will absolutely make it clear when collaboration with other students is acceptable and even encouraged. Students are permitted and encouraged to work together on both graded and ungraded homework assignments. That said -- students need to ensure they
complete their online homework assignments and that they can work problems independently in preparation for the exams.

Students may not collaborate on exams nor quizzes.

Incompletes: Students that have an excused absence from the final exam AND are passing the course based on all the work completed prior to the final exam may be eligible to receive a grade of “I” in the course. If these criteria are met, contact the instructor as soon as circumstances allow to discuss the possibility of an incomplete grade and the associated requirements for completion.

Student Mental Health and Stress Management: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student’s ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via http://www.mentalhealth.umn.edu/Links to an external site.

I am also a Mental Health Advocate. If you find yourself struggling with regard to your mental health, please feel invited to contact me. My job is to listen and help connect you with appropriate resources.

Sexual Harassment: "Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual’s work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy: https://regents.umn.edu/sites/regents.umn.edu/files/policies/Sexual_Harassment_Sexual_Assault_Stalking_Relationship_Violence.pdf/Links to an external site.

If you experience sexual harassment or even think you might have, a GREAT resource is the Aurora Center. The Aurora Center for Advocacy & Education provides a free and confidential space for students, faculty, and staff affiliated with the University of Minnesota, Twin Cities and Augsburg University who are victims/survivors/concerned people of sexual assault, relationship violence, stalking, and sexual harassment. http://aurora.umn.edu

If you talk to me about sexual harassment -- that's absolutely fine and I welcome you to talk to me. HOWEVER -- I do need to make sure you know that I am a mandatory reporter. This means that I am required to share information regarding sexual misconduct or information about a crime of sexual misconduct that may have occurred with the Office for Equal Opportunity & Affirmative Action (EOAA; diversity.umn.edu/eoaa/home). In contrast, the folks working at the Aurora Center are NOT mandatory reporters and can provide confidentiality. You can access free and confidential support and academic advocacy with The Aurora Center by
using their 24-hour help line, 612-626-9111, and addition resources are available through their websiteLinks to an external site.

**Disability Accommodations:** The University of Minnesota views disability as an important aspect of diversity and is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have a disability that could impact your learning in this class, please bring this to my attention as soon as possible. The sooner I know, the sooner I can make sure that your accommodation(s) is in place as soon as possible. I'm happy to discuss modifying accommodations at any time during the semester.

Further information is available from the Disability Resource Center at 612-626-1333 (https://disability.umn.edu/Links to an external site.).

**Use of Personal Electronic Devices in the Classroom:** Using personal electronic devices in during synchronous activities (whether in person or virtual) can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, personal electronic devices are not to be used for non-class related activities during our Chem 1071H synchronous activities. For complete information, please reference: http://policy.umn.edu/education/studentresp. Appropriate use of personal electronic devices includes (and is not limited to) taking notes on a personal laptop, looking up chemical information, performing numerical computation using a calculator, etc... Please save texting and social media for before and after class.

**Academic Freedom and Responsibility: for courses that do not involve students in research**

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".