

CHEMISTRY 032

Fall 2021

Innovation E102

Instructor: Alexandria (Lex) Alveshere

She/her/hers

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Minimum Open Hours: Monday and Wednesday: 1:00PM-4:30PM

Tuesday: 10:00AM-4:00PM

Section A M/W/F 12:00PM-12:50PM

I. Introduction

Course Overview

This course is the second in a two-semester sequence covering the foundational principles of chemistry. At the end of the first course in the sequence, Chem 031, we had explored the structure of the atom, the basics of bonding, and the properties of large groups of molecules and simple interactions with each other. This semester, we'll be looking at more complex molecular interactions, starting with a more in-depth look at solution-based chemistry and moving into chemical kinetics after that. Later in the semester we'll begin to look at reactions that don't proceed all the way to completion—when we have an equilibrium between products and reactants. We'll also re-visit thermodynamics and look at how thermodynamics influence reaction progression. We'll end the semester looking at electrochemistry reactions and the basics of nuclear chemistry to round out your understanding of chemistry.

Course Learning Objectives and Outcomes

The course learning objectives listed below describe the fundamental goals of this course. Success in this course will be measured by meeting the course objectives listed below. Please note that these objectives are not in the order in which they will be achieved or in order of importance!

- 1) You will be familiar with and appreciate the scope, methodology, and application of modern chemistry and its ability to explain the physical world.
- 2) You will understand that equilibrium governs all chemical reactions and how to manipulate chemical equilibrium to achieve a desired outcome.
- 3) You will be able to explain the interaction between molecules at the molecular level using chemical kinetics and model these interactions mathematically
- 4) You will understand how acids and bases interact with each other, how to manipulate the pH of a solution, and quantify this relationship.

- 5) You will be able to predict the spontaneity of a reaction based on its enthalpy and entropy changes at a given temperature and manipulate the reaction conditions to change the free energy of the reaction.

In addition to the overarching learning objectives listed above, by the end of the semester students should be able to do the following tasks, called learning outcomes. Again, these learning outcomes are not necessarily listed in the order that they will be covered in class.

- 1) Predict the properties of a solution, including phase change temperatures, vapor pressure, and osmotic pressure, based on the concentration of solute
- 2) Mathematically determine the rate for simple chemical reactions and find the integrated rate law based on concentration variation over time
- 3) Describe the chemical equilibrium of a reaction and express this equilibrium mathematically
- 4) Find the pH of a solution before, during, and after a titration given the identity of the acid and base
- 5) Predict the solubility of an ionic compound and determine the formation of a precipitate
- 6) Predict the spontaneity of a reaction based on changes in entropy and enthalpy at a given temperature
- 7) Understand the composition of an electrochemical cell and determine the potential of the electrochemical cell
- 8) Understand the different types of nuclear reactions and predict the products of a nuclear reaction

II. Course Structure

Course Participant Expectations

Part of my goal as an instructor for this course is to make the class as accessible and engaging as possible for all students, regardless of previous experiences with chemistry or prior knowledge coming into the class. As a part of this goal, we've created some class expectations for both students and for me as your instructor.

Student Expectations

- 1) I will be an active participant in the learning process to the best of my ability.
- 2) I will seek out help from my instructor, tutors, and peers when needed.
- 3) I will ask questions when I don't understand something.
- 4) I will help to build a positive, collaborative, and respectful atmosphere in the classroom by helping my fellow classmates when I am able.
- 5) I will communicate with instructors and fellow students in a respectful, professional, courteous manner.

Instructor Expectations

- 1) I will strive to make this class as accessible as possible to students
 - a. I will be present and ready to help during office hours
 - b. I will post lecture notes and recordings within 48 hours of finishing class
 - c. I will respond to all communications in a respectful, courteous, and timely fashion

- d. I will notify students of any extended times that I will be unavailable and provide alternative contacts
- 2) I will seek to build a positive, engaging, and collaborative atmosphere in the classroom, where students can feel comfortable asking questions and enjoy the learning process.
- 3) I will treat all questions as equally valid and coming from a genuine desire to understand the material.
- 4) I will highlight and celebrate chemists who come from diverse backgrounds and show the impact they have on the field of chemistry.

Instructional Methods

The primary method of instruction in this class will be through lecture, with some small-group problem solving interspersed. Lecture time will be used to cover new material and concepts in addition to working through sample problems. It is highly recommended that you familiarize yourself with the material to be covered in lecture before attending class and use in-class lectures to deepen your understanding of the material, whether that be through reading the covered topics from the assigned textbook or other instructional materials (some suggestions below!).

Textbook and Mastering Chemistry Access

If you have taken CHEM031 at UVM in the last year, you likely already possess the required materials. If not or you accidentally sold your textbook, there are four options to purchase "Chemistry Structure and Properties" 2nd Ed., by Tro (Full text ISBN-13: 978-0-13-429393-6) along with Mastering Chemistry online access.

- 1) An online site (~\$300; physical text and Mastering)
- 2) At the UVM bookstore (~\$160; physical text, solutions manual, and Mastering)
- 3) Digital access (~\$120; etext and Mastering)
- 4) Purchase a used textbook (\$??) and Mastering Chemistry separately (~\$75)

The digital solutions manual will be provided for free but also comes with the UVM package and has the complete solutions to all the assigned problems. The most bang for your buck is the UVM bookstore package. **The textbook itself is not required for the class**, but it is highly recommended as it has a wealth of practice problems with answers. However, I recognize that the cost of the textbook, even used, can present a significant barrier to acquiring it. If that is the case, there are alternative resources available in the "Additional Resources" section of this syllabus. There is also the option to partner with one or more other students and purchase the textbook together, though do be aware that the etext version of the textbook does have DRM that prevents more than two devices from accessing it at one time. **Mastering Chemistry is required**, and a significant portion of your homework grade will be earned through Mastering Chemistry assignments.

Open Hours

Open hours are an informal time where you can come chat with me in an individual or small group setting. Open hours can be used to get additional help on course material, seek feedback on graded assignments, access the homework problems in the textbook if you've not bought it or forgot it at home, troubleshoot Mastering Chemistry, get advice about university life, talk about your life plans, tell me about your new favorite book, and more. I would love for you to stop by, even if it is just to say hello. Rule of thumb: if my office door is open, and I am not currently with another student, feel

free to come in with questions. I am also available over Teams for questions—please send a Teams chat message and wait for a response before calling via Teams.

Listed at the top of the first page of the syllabus are the *minimum* open hours I will be holding throughout the semester. I will be available outside of those times, when possible, though unless you schedule something in advance, I cannot promise my availability. If you would like to arrange a time to outside of the listed minimum open hours or to discuss something in private, please arrange a meeting time in advance via email or Teams chat. **My recommendation would be to let me know what you would like to meet about, suggest two to three times you would be willing/able to meet with me, and whether you'd prefer to meet in-person or virtually.**

In the event that COVID restrictions prohibit meeting in person for office hours, we will reassess office hours and plan together for how to make sure that I remain as accessible as possible for everyone.

Problem Sets and Ungraded Assignments

For each chapter, problems from the official class textbook will be recommended to you to help build you build problem-solving skills and strengthen the connections that we build in class. These problems are not required and will not be turned in for class credit, but I strongly encourage you to attempt every problem assigned as the best way to learn chemistry is to practice chemistry. The answers for these assigned textbook problems can be found in the solutions manual provided on Bb for checking solutions. Exams from previous semesters will also be available in Bb for additional practice with answer keys provided—even though questions may change from year to year, many of the concepts will stay the same. Do not look at the answer before attempting the problems. It is easy to lull yourself into a false sense of security that way.

Mastering Chemistry and Homework Quizzes

Throughout the semester you will have the opportunity to demonstrate your knowledge the form of homework quizzes on Mastering Chemistry. These quizzes are open note and open book, but you are expected to work by yourself to answer the questions. There will be 8 HW quizzes throughout the semester, and you will have several days to complete each quiz. Once the quizzes close, they will not re-open, and there are no make-up HW quizzes.

Formative Assessments

There will be eight small formative assessments throughout the semester, designed to show your thinking and promote different ways of engaging with the course. Some of these assignments will be self-evaluations of your performance at different points in the class, while others may ask you to engage with a portion of the material and relate it to other parts of your life outside this course. Each of these assignments will be worth 5 points, and these assignments will be graded with 60% of the assignment's points being awarded for simply completing the assignment and 40% of the assignments points for deeply engaging with the assignment.

Up to a total of 25 points will be counted toward your final grade, with any extra points *from deeply engaging with the assignments* will be awarded as bonus points. This means that while you don't need to complete all of the formative assessments to earn full marks for this portion of your grade, you do need to deeply engage with at least one assignment to earn all 25 points for this portion of your grade.

Monday Night Madness

On non-exam weeks, I will be holding an optional *virtual* problem-solving session via Teams from 7:00PM-8:00PM, during the Chem032 exam block, colloquially referred to as “Monday Night Madness.” This purpose of these sessions is to provide extra, guided practice with some of the more challenging material in the course and to answer your questions about the course material. These sessions work most effectively when you actively participate in solving the problems. It is highly recommended that you send me topics or questions that you want discussed ahead of time to make the best use of these sessions.

These sessions are **not** recorded for two major reasons. I find that not recording the sessions encourages students to attend these problem-solving sessions instead of simply planning on watching the recording later and missing out on the major benefits of the session. Secondly, since these sessions are a time for you to practice what you know and make mistakes while you grow your knowledge, I have found that not recording these sessions makes students more willing to make mistakes and meaningful attempts at difficult problems since they know it will not be recorded for later viewing by their classmates.

Exams

Throughout the semester, your mastery of the course content will be tested at three midterms exams, administered on the days specified below. There are no scheduled make-up dates for the exams. However, your lowest mid-semester exam score can be replaced by your final exam score if you receive a higher percentage on that exam. Regardless of your Chem032 section, the exams are all administered at the same time at different locations depending on your lab section (also below). All mid-semester exams are written to take about 1.5 hours, but all students are provided with the full 3-hour exam block to complete the exam, regardless of time accommodations. For the final exam, students with ACCESS time accommodations may request additional time. If you are absent from an exam, official documentation of sickness or family crisis is required, or you will receive a ZERO for the exam. Students with legitimate excuses will be permitted to take the exam early. Except in very unusual circumstances, makeup exams will not be administered after the scheduled exam time.

While taking the exams, you are only permitted to use a non-graphing calculator. No other electronic devices are allowed. **Students caught using sources other than their own mind and their non-graphing calculator to complete the exam will be referred to the Center for Student Conduct as an Academic Integrity Violation.** All exams, with the exception of the final exam, will be made available after grading is completed for practice.

Exam Dates:

Exam 1	7 February*	Exam 3	18 April*
Exam 2	14 March*	<i>*All mid-semester exams will take place from 6:40-9:40PM</i>	
Final Exam		9 May 1:30PM-4:15PM	

Note: You must take your final exam during your registered section's time unless you obtain prior permission

Mid-Semester Exam Locations

Innovation E102	L01-L08 & Z01-Z08	Williams 301	L25-L30 & Z25-Z30
Innovation E105	L09-L12 & Z09-Z12	Votey 105	L31-L33 & Z31-Z33
Billings I101	L13-L24 & Z13-Z24		

All students will take the final exam in Innovation E102 (normal lecture location)

Additional Resources

Beyond lectures, open hours, the textbook, and Mastering Chemistry, there are a wealth of additional resources available to you on the internet and at UVM. You may find some of these resources more useful than others—that's fine! You may not find any of them useful—that's okay too! If you discover other resources throughout the semester that help you learn chemistry, please let me know, and I'll add them to my list!

UVM Specific Resources:

- TA Office Hours: see the Lab section of this syllabus. Please know that these office hours are not just for lab help, but for assistance with all aspects of Chem 032! You are also not just limited to your own TA's office hours—try out a few different TAs and see who works best for you
- UVM Tutoring Center (https://www.uvm.edu/academicsuccess/subject_area_tutoring): UVM provides tutoring for specific classes, including Chem 032, for free to all students at the university. Sessions must be scheduled in advance, but tutors are all students who have taken and succeeded in the class.
- Supplemental Instruction (https://www.uvm.edu/academicsuccess/supplemental_instruction_schedule): Supplemental Instruction or SI is a peer-led study group run by the Tutoring Center to help students in large enrollment classes review the material, practice solving problems, and work with peers to help better understand course content. Unlike individual tutoring, you do not need to sign up in advance to attend!
- Chemistry Grad Student Tutoring (email andrea.lucey@uvm.edu for a list of current Grad Student Tutors): Many of the chemistry grad students at UVM provide tutoring in chemistry. However, unlike the previously listed resources, this is **not** a free service, and most of the tutors charge between \$25-\$40 per hour depending on the situation.

General Internet Resources:

- ChemLibreTexts (<https://chem.libretexts.org/>), an alternative open-access chemistry textbook
- Khan Academy (<https://www.khanacademy.org/science/chemistry>), a non-profit organization that offers a variety of course to help support learning
- The Organic Chemistry Tutor (<https://tinyurl.com/OrgChemTutor>), an educational Youtuber who mostly covers chemistry topics, including gen. chem and organic chem.
- Professor Dave Explains (<https://tinyurl.com/ProfDaveExpl>), an educational Youtuber who covers a variety of topics, including chemistry
- Wikipedia and Simple Wikipedia provide a good overview on many of the topics covered in this class
- Other colleges/university websites (look for the .edu as part of the web address!)

A word of caution: While Chegg, Quora, and other similar “homework help” sites/forums also contain information on chemistry, it is best to avoid these sites for two main reasons: 1) the information provided by these sites is not always correct and often contains errors or misinformation, and 2) it is easy to cross the line from using these sites to help you understand chemistry to committing academic integrity violations. A good rule of thumb when using some of these additional resources is not to look for the answer itself but for information that will help you discover the answer for yourself. For example, don’t search for the whole question but individual pieces of information. Posting on these sites for help with *graded* assignments is considered cheating and a violation of UVM’s academic conduct policies.

III. Laboratory

Lab

In order to learn chemistry well, you must also learn to do chemistry. As a part of this course, you will attend lab every week to perform experiments that serve to teach you hands-on skills as well as reinforce the concepts covered in class. Please read the separate lab syllabus (found here:) for a full breakdown of requirements, grading, and policies for lab.

Lab Attendance

Students must attend the lab section they are assigned to. If more than two labs are missed, you will receive an F for the course. Only the academic dean of your college may grant an incomplete. An unexcused absence (i.e. just not showing up to lab) will result in a ZERO grade for the laboratory experiment. If you miss a lab, contact your TA and the lab coordinator Christine Cardillo (Christine.cardillo@uvm.edu) as soon as possible to determine how to make up the missed lab. If there is a need to reschedule your lab time to one that is not your assigned time you must obtain permission from the lab coordinator as soon as you are aware of the need to reschedule.

Lab Period Expectations

To help you ease into the lab setting, I want to lay out what you can expect from your typical lab period and give you some tips and tricks to help you get the maximum benefit from lab.

Before coming to each lab, you should read the material provided in the lab manual for that week’s experiment and complete the pre-lab questions. The pre-lab questions serve as a scaffolded way to guide you to the important parts of the lab and help prepare you for the week’s lab. They will also help you think deeper about how the material we cover in class has practical applications in the lab.

I would highly recommend printing the complete lab, found in the lab Bb page, including the introductory material, experimental procedure, and post-lab questions and calculations, and actively annotating that document as you read it. While there will not be a pre-lab quiz, effective preparation for lab means both more efficient, safer, and all-around better performance in the lab. My personal recommendation is to also review the post-lab questions and calculations before going to lab—they will give you a heads up about what sorts of information you should be gathering during the lab and how it will be used in your post-lab exercises.

At the start of each lab period, you'll come in and turn in your pre-lab questions and pick up a copy of the day's recitation questions. The first half hour of the lab period will be spent working the recitation problems in small groups with the help of your lab TA. Recitation questions are designed to help reinforce the course material and set you up for completing the post-lab calculations. The questions are not given in advance of the lab—this helps simulate a test situation where you don't know the exact questions in advance. Unlike a test situation, you have the opportunity to work on these questions in small groups and use your class notes, textbook, and any other resources to help you solve them.

These questions will not be graded, but active participation in the recitation section of the lab will help you do better in the class and on exams. To get the most out of the recitation session, review the concepts covered in lecture before attending lab and take a look at the post-lab calculations. There may be times that the lab gets slightly out of sync with the lecture, especially if you have a lab time that is earlier in the week. In that case, you can use recitation as an initial exposure to the material, which will then be further developed in class.

After the recitation period, your TA give a pre-lab chat, emphasizing important points for the lab as well as give you some pointers for success in the lab. The TA will also demonstrate any new techniques needed to successfully perform the lab. From there, you will be turned loose to start in on your experiments. Labs will typically be done in pairs, giving you someone to bounce ideas off of and divide the work with. This set-up works best when both students are equal participants in the experimental work.

Once you have completed the lab and cleaned up your reagents and equipment, you should check in with your TA to make sure that you haven't missed anything, and then you can leave the lab. However, I would strongly recommend that you remain in the lab room if you finish early and use that time to work on your post-lab calculations and questions. Your lab TA is a great resource for helping you with the post-lab, and by sticking around and working on the post-lab, you can easily take full advantage of their expert knowledge.

IV. Grading

Grading

Every student in this class has the opportunity to earn an A/their desired grade. You are not competing with your fellow students for grades in this course. If everyone in the course scores in the "A-range" (maximum lower limit for an A- being 900 points total), I will give everyone in the course at least an "A-" for the semester. Your final grade at the end of the semester will reflect your overall performance in the course. While I cannot say in advance exactly which point ranges correspond to each letter grade, I will give approximate correlations throughout the semester, following each of the mid-term exams.

I highly encourage students to work together as you study, review the material, and practice your problem-solving skills, **but all graded work must be solely your own**, including homework

quizzes, exams, and lab reports. Be prepared to work independently to demonstrate your own mastery of the material.

Lab Score Breakdown

Each lab will be worth a total of 25 points, for a total of 250 points possible for the lab portion of your grade, making lab worth the same as final exam or two mid-semester exam. Often lab ends up being a major boost for most students' final grade. Grades for each lab will be divided between the pre-lab questions (8 points), the post-lab calculations and questions (14 points), and technique points (3 points).

Manually Calculating Your Course Total

There are a maximum of 1000 points available split between your "lecture" points (max 750) and your "lab" points (max 250). Doing well in both components of the course is needed to do well in the course overall. The points are further broken down as follows:

- 1) Lab: 250 points
 $25 \text{ points/lab} * 10 \text{ labs} = 250 \text{ points}$
- 2) Homework: 125 points
 $12.5 \text{ points/assignment} * 8 \text{ assignments} = 100 \text{ points}$
- 3) Mid-Semester Exams: 375 points*
 $125 \text{ points/exam} * 3 \text{ exams} = 375 \text{ points}$
- 4) Formative Assessments: 25 points
- 5) Final Exam: 250 points

You must take the final exam to pass the course

Grade Appeals

The University of Vermont is committed to an environment in which the quality of students' work is evaluated fairly, and in which students have the right to discuss and review their academic performance with their instructors. If you feel you have been graded unfairly, you have the right to appeal your grade by following the procedures outlined in this document:

<https://www.uvm.edu/sites/default/files/UVM-Policies/policies/gradeappeals.pdf>

V. Diversity Equity and Inclusion (DEI)

Diversity, Equity, and Inclusion

The Division of Diversity, Equity, and Inclusion believes excellence should be inclusive of the entire University of Vermont (UVM) community and is steadfastly committed to this belief. Every day, our division strives to make our work accessible, affirming, and action-oriented to help ensure excellence is inclusive of everyone. The university also has a number of groups on campus that are dedicated to various aspects of DEI, many of which are listed below.

To read more about official UVM policies, events, and initiatives regarding diversity, equity, and inclusion: <https://www.uvm.edu/diversity>

* If you score higher (in terms of percentage) on the final exam than one of your mid-semester exams, that score will be scaled to replace your lowest mid-semester exam score.

Managing Your Identity at UVM

Students at UVM can specify the first name and pronoun they want used on campus. All students at the University of Vermont can indicate their preferred first name and pronoun to the University community regardless of whether or not they have legally changed their names. Choosing a preferred name in the BANNER system will automatically change which name appears in many internal locations such as class lists, grade reports, and unofficial transcripts.

For more information on how to update your preferred name and personal pronouns as well as keeping your legal name private: <https://www.uvm.edu/registrar/preferred-name-and-pronoun>

ACCESS Student Learning Accommodations

In keeping with university policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. ACCESS works with students to create reasonable and appropriate accommodations via an accommodation letter to their professors as *early as possible each semester*.

Rights and Responsibilities: <https://www.uvm.edu/academicsuccess/rights-and-responsibilities>

Contact ACCESS: A170 Living/Learning Center

802.656.7753

access@uvm.edu

UVM Policy on disability certification and student support: <https://www.uvm.edu/sites/default/files/UVM-Policies/policies/disability.pdf>

If you are having difficulty navigating the ACCESS process, let me know as soon as possible so we can work towards getting you the accommodations you need.

Religious Holidays

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes (no later than 24 January). You will be permitted to make up work within a mutually agreed-upon time.

For more information: <https://www.uvm.edu/registrar/religious-holidays>

Interfaith Center

We all have a need to make meaning of our lives and find answers to the big questions: Who am I? Why am I here? What's my relationship with that which is beyond me? Each of us engages those questions differently, perhaps through a religious tradition, philosophy, or spiritual practice. No matter how you make meaning of your life, you are welcome at the Interfaith Center for reflection, spiritual practice, education, and community building. <https://www.uvm.edu/interfaithcenter>

Prism Center

The Prism Center serves the diverse queer and trans communities at the University of Vermont. We support and empower lesbian, gay, bisexual, transgender, and queer students, as well as students whose identities fall in between or expand beyond those categories, and work to create a campus community where people of all sexual and gender identities can thrive. <https://www.uvm.edu/prism>

Mosaic Center for Students of Color

The Mosaic Center for Students of Color (MCSC) Vision is to create a diverse and rich community of empowered, engaged, and enthusiastic students of color at UVM. We fully support the holistic development of self-identified students of color so that they can obtain their goals for academic achievement, personal growth, identity formation, and cultural development.
<https://www.uvm.edu/mcsc>

UVM Women & Gender Equity Center

The equity center cultivates joyful community while advancing gender equity across identities. We envision a brave, diverse, and equitable learning environment for all members of the UVM community. We provide advocacy services for those in our community who have experienced sexual or intimate partner violence, and strive to provide programming, education, and events that ask our community to explore the intersections of their gender and other identities.
<https://www.uvm.edu/wagecenter>

UVM Women in STEM

A student led group at UVM with a focus on gender equality in the STEM fields. Their mission is to connect students at the UVM and to support diversity in STEM fields at all levels of education, including undergraduate, graduate, and postdoctoral. Additionally, we aim to address and discuss issues for underrepresented groups in STEM, hold meetings to improve professional skills, and form a community that is inclusive of all gender identities that support equality in STEM.

Blog: <https://blog.uvm.edu/wstem/uvm-womxn-in-stem-network/>

UVM oSTEM

oSTEM is a national chapter-based organization (<https://ostem.org/>) that empowers LGBTQ+ people in STEM to succeed personally, academically and professionally.
<https://www.facebook.com/groups/ostemvermont/>

Resources Outside UVM for DEI

The American Chemical Society (ACS) has curated a number of resources on Diversity and Inclusion (<https://www.acs.org/content/acs/en/membership-and-networks/acs/welcoming/diversity.html>) as well as the Association of American Medical Colleges (AAMC) (<https://www.aamc.org/what-we-do/equity-diversity-inclusion>) There are also a number of other national groups for advancing the interests of underrepresented minorities in STEM fields, some of which are specific to certain STEM disciplines.

- The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE): <https://www.nobcche.org/>
- The American Indian Science and Engineering Society (AISES): <https://www.aises.org/>
- Advancing Chicanos/Hispanics & Native Americans in Science (SACNAS): <https://www.sacnas.org/>
- Out to Innovate (formerly NOGLSTP): <https://www.noglstp.org/>
- Association for Women in Science (AWIS): <https://www.awis.org/>
- The Society of Asian Scientists and Engineers (SASE): <https://www.saseconnect.org/>

- Women of Color Research Network (WoCRN): <https://womeninscience.nih.gov/women-of-color>
- Latinas in STEM: <http://www.latinasinstem.com/>
- Maximizing Access to Research Careers (MARC): <https://www.nigms.nih.gov/training/MARC>

VI. Health and Safety

Health and Safety

The University of Vermont's number one priority is to support a healthy and safe community. To help accomplish that goal, UVM provides a number of resources for students to help maintain physical and mental health.

Center for Health and Wellbeing (CHWB): <https://www.uvm.edu/health>
802.656.3350
health@uvm.edu

Counseling & Psychiatry Services (CAPS): <https://www.uvm.edu/health/CAPS>
802.656.3340

Center for Health and Wellbeing (CHWB)

CHWB has a number of resources for supporting student physical health, including on-campus appointments for behavioral health, cold & flu, eating disorder and body image support, nutrition services, sexual health, transgender healthcare, allergies, and sports injuries. Most services at CHWB will take place via telehealth, and if you are having difficulty finding a private space for your telehealth appointment, spaces in the Davis center can be booked a minimum of six hours in advance (<https://www.uvm.edu/sites/default/files/Center-for-Health-Wellbeing-at-UVM/TelehealthRooms-HowtoSchedule.pdf>)

Counseling and Psychiatry Services (CAPS)

CAPS provides free short-term counseling to students at UVM, both in individual and group settings. In addition, CAPS also offers drop-in conversations with counselors, called Let's Talk, which are a more immediate option if you're struggling and are having difficulty making a scheduled appointment with CAPS (<https://www.uvm.edu/health/letstalk>). They also offer a variety of workshops to help support and strengthen mental health (<https://www.uvm.edu/health/mentalhealthworkshops>) and targeted group therapies for students struggling with issues such as body image, being away from home, managing college life, and depression/anxiety (<https://www.uvm.edu/health/group-counseling>).

Living Well

Living Well in the Dudley H. Davis Center is a home base for health promotion on the UVM campus. Whether you're looking for medical services, drop-in counseling, or help changing habits, you can find it at Living Well. Living Well has drop-in offices hours for your questions and support about sexuality, nutrition, substance use, tobacco and nicotine as well as mindfulness workshops, mental health workshops, sexuality education, substance use workshops and therapy dogs. For more

information about what's offered at Living Well, visit their website:
<https://www.uvm.edu/health/livingwell>

Students in Distress

Occasionally, members of our community find themselves or others in need of additional help and support. If you are concerned about the health, well-being, or safety of yourself or a fellow student, you can reach out to the Dean of Students directly at 802.656.3380 or submit an anonymous Concerning and/or Risky Event (CARE) form, found at the link below.

https://www.uvm.edu/deanofstudents/student_advocacy/care_form

More specific resources for students in distress, including but not limited to depression, anxiety, substance abuse, abusive relationships, and sexual harassment, can be found at the following link:

https://www.uvm.edu/deanofstudents/students_concern

Illness Accommodations

You do not need to supply verification of illness if you need to miss class due to an illness. If you are feeling ill, please do not come to class.

The Center for Health and Wellbeing does not provide students with notes verifying medical illness. This approach makes the best use of their limited medical resources by not having students who are required to provide verification of a recent illness utilize appointment times which can be used for students who require evaluation and therapy. Instead, contact your college's Dean's office so they can report your illness to all of your professors.

When students experience a serious illness requiring hospitalization or when an extended absence from class is foreseen, a Center staff member will (with the student's permission) notify the Dean's Office of the student's College or School so that faculty members can be made aware, and the student supported in working successfully through the absence.

COVID-19 Accommodations

Due to COVID-19 we advise that a student feeling any symptoms should get checked out before attending an in-person class. Keep in mind that if a student attends an in-person class and tests positive for COVID-19 that they are putting other students at risk and their possibly quarantine as well. **When in doubt, go get tested.**

The [Green and Gold Promise](#) clearly articulates the expectations that UVM has for students, faculty, and staff to remain compliant with all COVID-19 recommendations from the federal CDC, the State of Vermont, and the City of Burlington. This include following all rules regarding facial coverings and social distancing when attending class.

If you do not follow these guidelines, I will ask you to leave the class. [The Code of Student Conduct](#) outlines policies related to violations of the Green and Gold Promise. Sanctions for violations include fines, educational sanctions, parent notification, probation, and suspension.

Alcohol and Cannabis Statement

As a faculty member, I want you to get the most you can out of this course. You play a crucial role in your education and in your readiness to learn and fully engage with the course material. It is important to note that alcohol and cannabis have no place in an academic environment. They can seriously impair your ability to learn and retain information not only in the moment you may be using, but up to 48 hours or more afterwards. In addition, alcohol and cannabis can:

- Cause issues with attention, memory and concentration
- Negatively impact the quality of how information is processed and ultimately stored
- Affect sleep patterns, which interferes with long-term memory formation

It is my expectation that you will do everything you can to optimize your learning and to fully participate in this course.

VII. Additional Policies

Email/Teams Chat Etiquette

The primary way that you can communicate with me outside of class time is via email. While your written messages to me don't have to be overly formal, professional written communication is an important skill to build, and professional communication will serve you well as you work towards your degree and move out into the professional world. To make sure everyone is on the same page, I recommend reviewing the format below before sending your first few emails. The format listed below can also be used for Teams chats (excluding the subject line).

- 1) Subject line: Make this short and descriptive—think of it as a one-line summary of the email.
- 2) Greeting: Some form of greeting (Hello and Good morning/afternoon are always good ones!) followed by my name (Prof. Alveshere, Prof. Lex, Alexandria, etc. *but never Mrs./Ms.!*)
 - a. If you are unsure of how to address someone you are emailing, you can leave off their name in the initial email and address them in later emails based on how they sign-off on their emails.
- 3) Introduction: Let me know not only your name but also which section you are in and if we've had any personal interactions. That helps me put faces to names and speed of the process of answering any questions you have.
- 4) Reason for emailing: This is where you tell me what you want! Try to give me as much information in your initial email as possible so that we don't have to spend a lot of time emailing back and forth, dragging out the process of getting help. If you have multiple questions, number them to make it easier for me to respond and make sure I answer all of your questions.
 - a. If you're trying to set up a time to meet with me, you can speed that process up by suggesting three potential times to meet as well as what you want to meet about and whether you'd prefer to meet virtually or in-person in your initial email!
- 5) Sign-off: Your name goes here!
- 6) Before sending your email, you should double-check it for spelling/grammar mistakes

In terms of email/MS Teams chat response times, I can usually be expected to respond to emails within about 24 hours (excluding the weekends), between the hours of 8:30 AM and 8:30 PM. Messages sent after that time will usually get a response the next day since I'm old and like to go to bed early. If you have not received a response to a message after ~24 hours, send me another message asking for a response. I occasionally open messages and forget to respond to them (I am

only human!). My responses to messages will be limited on the weekends, so messages sent late on Friday may not receive a response until Monday morning.

Electronic Devices in the Classroom

The use of electronic devices during lecture is permitted as long as they are being used in a manner that is not disruptive to your fellow students. This includes, but is not limited to, making sure that all electronic devices are silenced and that you are using them to support your learning by taking notes, accessing class materials, and/or doing calculations. If you are using your electronic devices in such a way that disrupts other students, I reserve the right to ask you to either put the device away or leave the classroom. If you cannot silence your electronic device (waiting for a medical update, a potential family emergency, etc.), please let me know before class begins.

Academic Integrity

Offenses against the Code of Academic Integrity (i.e. cheating) are deemed serious and insult the integrity of the entire academic community. Any suspected violations of the code are taken very seriously and will be forwarded to the Center for Student Ethics and Standards for further investigation.

For more information: <http://www.uvm.edu/policies/student/acadintegrity.pdf>

Affirmative Action and Equal Opportunity (AAEO)

Sexual misconduct, discrimination, and harassment are never the fault of the victim.

The Affirmative Action and Equal Opportunity Office investigates complaints by administering an equal opportunity complaint procedure including investigating allegations of prohibited discrimination and harassment brought by students, faculty, and staff. This office also resolves both informally and formally complaints of discrimination based on race, color, religion, ancestry, national origin, sex, sexual orientation, disability, age, positive HIV-related blood test results, status as a disabled or Vietnam era veteran, or gender identity or expression. UVM encourages any person who has experienced or witnessed a bias incident, discrimination, or harassment to report the conduct to UVM and to utilize available support services. Visit <https://www.uvm.edu/aaeo> to report an incident or to seek out resources for preventing and recovering from a bias incident.

In the deeply unfortunate event that you experience a bias incident and need additional help and support in dealing with AAEO, please reach out to me. I will personally provide what support I can as you navigate the reporting process and recover from the incident.

FERPA Rights Disclosure

The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.

<http://catalogue.uvm.edu/undergraduate/academicinfo/ferparightsdisclosure/>

VIII. Tentative Lecture Schedule

<u>Dates</u>	<u>Material</u>	<u>Homework Problems</u>
17- 22 Jan	Syllabus and Class Dynamics	Review the syllabus
	Chapter 13: Solutions	Ch13: 25, 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 59, 63, 65, 67, 69, 71, 73, 77, 79, 81, 83, 85, 87, 89, 93, 97, 99, 105, 109, 115
24-28 Jan	Chapter 13: Solutions Chapter 14: Chemical Kinetics	Ch14: 27, 29, 31, 37, 41, 45, 47, 53, 55, 59, 65, 71, 75, 77, 83, 89, 91, 95, 103, 105, 107
31 Jan	LAST DAY TO ADD/DROP COURSE	
31 Jan – 4 Feb	Chapter 14: Chemical Kinetics	See previous box
7 Feb	MID-SEMESTER EXAM 1	
7 – 11 Feb	Chapter 15: Chemical Equilibrium	Ch15: 21, 23, 27, 29, 31, 33, 35, 37, 39, 41, 45, 47, 49, 53, 55, 59, 63, 65, 67, 69, 71, 73, 75, 79, 81, 83, 89
14 – 18 Feb	Chapter 15: Chemical Equilibrium Chapter 16: Acids and Bases	Ch16: 31, 33, 35, 37, 39, 41, 45, 49, 51, 55, 59, 61, 65, 67, 69, 71, 75, 79, 81, 83, 85, 87, 89, 91, 95, 97, 99, 101, 103, 107, 109, 111, 113, 115, 117, 121, 123, 127, 129, 133, 141
21 Feb	President's Day	
22 – 25 Feb	Chapter 16: Acids and Bases	See previous box
28 Feb – 4 Mar	Chapter 16: Acids and Bases	
1 Mar	Town Meeting Day	
7 – 11 Mar	SPRING BREAK	
14 Mar	MID-SEMESTER EXAM 2	
14 – 18 Mar	Chapter 17: Aqueous Ionic Equilibrium	Ch 17: 25, 27, 29, 31, 33, 35, 39, 41, 43, 45, 49, 51, 53, 57, 59, 61, 63, 65, 67, 69, 71, 75, 81, 83, 85, 87, 93, 95, 97, 103, 105, 111, 113, 115, 121, 125
28 Mar – 1 Apr	Chapter 17: Aqueous Ionic Equilibrium	
4 April	Last day to withdraw from the course	
4 – 8 Apr	Chapter 17: Aqueous Ionic Equilibrium Chapter 18: Free Energy and Thermodynamics	Ch18: 31, 35, 37, 39, 41, 45, 47, 51, 53, 55, 59, 61, 67, 71, 73, 75, 85, 87, 93, 101

† Material covered on exam will depend on our lecture progress

‡ Material covered on exam will depend on our lecture progress

11 – 15 Apr	Chapter 18: Free Energy and Thermodynamics Chapter 19: Electrochemistry	Ch19: 33, 35, 37, 39, 41, 43, 45, 47, 49, 53, 57, 59, 61, 63, 65, 69, 71, 73, 77, 83, 85, 89, 97, 99, 103, 105, 115, 119
18 Apr	MID-SEMESTER EXAM 3	Chapters 16, 17, & 18 [§]
18 – 22 Apr	Chapter 19: Electrochemistry	See previous box
25 – 29 Apr	Chapter 19: Electrochemistry	
2 – 6 May	Chapter 20: Radioactivity and Nuclear Chemistry	Ch 20: 31, 33, 35, 37, 41, 45, 51, 57, 61, 71, 73, 81, 83, 89
9 May 1:30PM- 4:15PM	Final Exam (Section A)	Cumulative

[§] Material covered on exam will depend on our lecture progress

IX. Lab Schedule

Dates	Experiment	Description	Associated Textbook Chapters
17 - 21 Jan	NO LAB!	Prepare for lab!	N/A
24 - 28 Jan	Lab Check-In	Meet your TA, get familiar with the lab, set expectations	N/A
31 Jan - 4 Feb	Experiment 1	Freezing Point Depression	Chapter 13
7 - 11 Feb	Experiment 2	Iodination of Acetone	Chapter 14
14 - 18 Feb	Experiment 3	Equilibrium of Iron Thiocyanate	Chapter 15
21 Feb	NO LAB due to President's Day		
22 - 28 Feb**	Experiment 4	Antacid Neutralization Power	Chapter 16
1 - 4 Mar	NO LAB due to Town Meeting Day!		
7 - 11 Mar	NO LAB due to Spring Break		
14 - 18 Mar	Experiment 5	Acids, Bases, and Buffers	Chapters 16 and 17
21 - 25 Mar	Experiment 6	Solubility of Copper Hydroxide	Chapter 17
28 Mar - 1 Apr	Experiment 7	Hot and Cold Packs	Chapter 18
4 - 8 Apr	Experiment 8	Thermodynamics of Borax	Chapter 18
11 - 15 Apr	Experiment 9	The Oxidizing Power of Bleach	Chapter 19
18 - 22 Apr	Experiment 10	Electrolysis and Electroplating	Chapter 19
25 - 29 Apr	Lab Check-Out	Clean up the lab, turn in final lab assignments	N/A

** Note that this lab runs from Tuesday to the following Monday due to President's Day