CHM 191: General Chemistry
Fall 2023

Course Syllabus

CHM 191 is a synchronous, face-to-face course for the Fall 2023 semester. We will use active learning strategies in our lecture meetings – that means that you will be actively engaged in learning the material. As such, attendance is expected and in-class participation will count towards a portion of your overall grade. More details describing the course structure can be found below.

Course Meetings:

Lecture:	Monday, Wednesday, Friday	1:00 PM – 1:50 PM	Beaupre Center – Room 105
Recitation:	Monday	2:00 PM – 2:50 PM	Beaupre Center – Room 105
Lab:	Section L01 - Tuesday	8:00 AM – 10:45 AM	Beaupre Center – Room 165
	Section L02 - Thursday	8:00 AM – 10:45 AM	Beaupre Center – Room 165

Instructor: Dr. Justin M. Pratt
Beaupre Center 425F
justin.pratt@uri.edu

Lab Teaching Assistant: Ms. Kendra Keenan
kendrakeenan@uri.edu

Student Support Sessions (office hours): ***To be determined first week of classes with input from students***
All students can also automatically schedule an individual chat with Dr. Pratt using this link: https://calendly.com/dr-pratt/ You have the option for both in-person and remote via Zoom.

What are Student Support Sessions?
Some professors call these "office hours" meaning these are times professors are in their offices ready to help students. I call these Student Support Sessions as the name is more descriptive – these are times I have set aside purposefully to support you in your chemistry & academic experiences. Please come to my office for support!

What happens in Student Support Sessions?
This is up to you! We can chat & get to know each other. We can discuss course material and help you. We can talk about school, life, future plans, etc. These sessions are entirely up to you and your needs. If the scheduled times don't work for you, please consider scheduling individual chats using this link. Remember, I am here to support you.

Course Goals: Chemistry is a science of abstract concepts connecting the properties of things you can see to the behavior of particles you cannot see. CHM 191: General Chemistry is a one-semester course for chemistry majors that covers fundamental chemical concepts and principles, including states of matter, stoichiometry, reactivity, atomic structure, thermochemistry, bonding, molecular structure, and solutions.

During the course of this semester, students are expected to:
1. Develop a strong conceptual understanding of chemistry and the language of chemistry.
2. Develop problem-solving and critical thinking skills relevant to chemical principles and transferrable to other subjects.
3. Understand the importance of written work, including legibility and units.
4. Develop an appreciation of the relevance of chemistry to our daily lives.

Course Format will be face-to-face instruction with active learning strategies – students will be expected to actively engage in all lecture, recitation, and lab activities. As such, attendance in all components of the course is mandatory as participation will contribute to your final grade (detailed below).

Required Materials: All students need access to…

1	**Textbook or eBook**	Silberberg, M. S., & Amateis, P. G. (2024). *Chemistry: The Molecular Nature of Matter and Change* (10th ed.). McGraw-Hill, New York, NY. ISBN (hardcover): 9781266199233 ISBN (e-book): 9781266191190
2	**ALEKS 360 Homework System Subscription**	www.ALEKS.com **Course Code: KXQP4-AHMC6** (Fall 2023 Semester)
3	**Scientific Calculator**	You will need a calculator that can perform scientific notation, roots, powers, and logarithms (typically called a scientific calculator). You should plan to bring it to ALL in-person meetings. **Note: Graphing calculators will NOT be allowed for exams.**

Course Material Purchasing Options:

Students are required to have access to the textbook (printed or electronic) as well as a subscription to ALEKS that runs through the entire semester (must have access through Finals Week). Students may choose how to purchase these materials (e.g., buying new, used, rent) as well as if they choose to purchase materials individually or bundled.

Most Cost-Effective Option: Purchase an 18-week ALEKS 360 subscription which comes with access to an interactive e-book. When purchased directly from McGraw Hill, the bundled option is $80 for the semester (i.e., $80 for your e-textbook + access to the ALEKS homework system). You can purchase this option during ALEKS registration at www.ALEKS.com. See ALEKS Student Registration Instructions on Brightspace for more details.

If you want a physical copy of the textbook, you will have an option inside ALEKS *once a subscription is purchased*. This option allows you to purchase a printed, loose-leaf version of the textbook and have it shipped to you. This is an additional cost to purchasing an ALEKS 360 subscription; however, some students prefer physical copies so this is an option. See ALEKS Student Registration Instructions on Brightspace for more details.

URI Bookstore: The Bookstore should have 18-week ALEKS 360 subscriptions (including eBook access) available for purchase. However, I am unsure of the price. Typically, there is a small markup for the bookstore resulting in a higher cost for you (i.e., likely more than $80).

The bookstore should also have physical copies of the textbook available for purchase, if you are interested.

Weekly Course Schedule

This course will follow a fairly consistent weekly schedule to help manage time and course activities. Details describing these various activities are below.

Lectures & Recitations will be face-to-face and employ active learning strategies. These sessions will be based on readings from the text and will introduce new concepts. We will spend class time discussing the new concepts with plenty of time to practice. Attendance is expected and in-class participation is a component of your overall grade.

Assessments will include quizzes, during-the-semester exams, and a cumulative final exam. For all assessments, material will be drawn from lecture/recitation material as well as homework. All exams are already scheduled, see the course schedule on the last page. Most quizzes will be unannounced (i.e., "pop quizzes"); however, the goal of these quizzes is to help you gauge how well you understand the material – you can expect these quizzes to be short and low stakes. All quizzes will be conducted on Brightspace/the course website to allow flexibility and the use of academic accommodations.

Because the course content builds during the semester, all exams are cumulative including the final exam. Learning chemistry is like learning a foreign language; earlier concepts cannot be forgotten when moving on to new material. Exams are closed book, closed notes, and will consist of a variety of multiple-choice and free-response questions.

Homework will be assigned to aid in your understanding of the material and retention of basic concepts. As chemistry is a quantitative science, homework sets are designed to allow you to practice problem solving, further explore topics covered in lecture/recitation and apply them, and to recognize areas where you still have difficulties. Discussions with fellow students are encouraged, however each student will complete their homework independently and ensure their own understanding of the material. Weekly homework assignments will be available starting on Monday of each week and are due by 11:59 PM on the following Sunday (meaning you have 6 days to complete your homework assignments).

The web-based Assessment and Learning in Knowledge Spaces (ALEKS) system is the homework system for this course. ALEKS is a web-based, artificially intelligent assessment and learning system. ALEKS uses adaptive questioning to quickly and accurately determine exactly what you know and don't know in the course, and then provides instruction on the topics you are most ready to learn. For ALEKS, there are two modes in which you will work: Knowledge Check/Assessment Mode and Learning Mode.

> In **knowledge check/assessment mode**, ALEKS uses an assessment to determine what topics you have and have not yet mastered. Each ALEKS assessment takes about 45 minutes, so please plan accordingly. ALEKS uses the assessment data to determine what you need to learn (or re-learn), tailoring the system to you. For the topics you have not yet mastered, ALEKS has you work in **learning mode** where you do tutorials and problems to build your understanding. Working in learning mode is best done in frequent, small blocks of time. For example, four 30-minute periods with ALEKS in a week is much better than one 2-hour block.
>
> Your ALEKS homework grades in this course are determined by your percentage score on individual homework assignments, at each of their ALEKS due dates

Objectives/Homework with Due Dates: These are your weekly homework assignments. Due dates are posted on ALEKS and are synchronized with the content addressed in lecture. The purpose of these assignments is to keep you working regularly on learning chemistry. It is human nature to procrastinate, and this part of the course structure rewards those who work regularly toward mastery! The percentage mastery score you earn on each weekly assignment will be weighted equally and averaged. The "gradebook" section of ALEKS enables you to track these scores, and they are updated in the class Brightspace website's gradebook regularly. **Your average ALEKS score from these weekly assignments with due dates is scaled according to the overall course grade percentage attributed to homework assignments at the end of this document.**

Laboratory work is an integral and required part of CHM191. For all labs, attendance is required and your grade will be based on your written work and performance in the lab. There will *not* be opportunities to make-up labs, so it is in your best interest to not miss more than one. Unavoidable and excused absences will be handled on an individual basis, please discuss with your lab teaching assistant as soon as you know you will miss a lab session. Above all, safety is paramount in the laboratory; unsafe behavior will not be tolerated and will result in dismissal from the lab and a zero for any missed work.

Some of the laboratory exercises you complete for this course will be done while working with a lab partner. For each lab, you will be asked to turn in lab reports that reflect your own independent observations and conclusions. Failure to turn in a report will result in a zero for that assignment. Copying of lab reports will result in disciplinary action. You will receive more detailed instructions during your first laboratory period. **More specifics regarding lab policies and expectations can be found in the CHM 191 Laboratory Syllabus (see Brightspace for Lab).**

Course Policies:

1. ***Attendance and participation*** are expected for all class sessions. Students are responsible for all course materials regardless of attendance. In-class participation is a component of your overall grade; more details will be discussed in class.
2. ***Late work*** is typically not accepted. Special considerations will be made on a case-by-case basis.
3. ***Extra Credit*** is not usually offered. Special considerations will be made on a case-by-case basis.
4. ***The use of cell phones, laptops, or other electronic devices (other than scientific calculators) in class is limited to course-specific tasks.*** Using devices for non-course-related tasks (e.g., social media, texting) will result in dismissal from class and losing that day's course participation credit(s).
5. ***COVID-19 Health Considerations:*** *In this class, we will look to the Center for Disease Control (CDC) and URI policies for guidance on personal protective equipment (PPE) for COVID-19. Please understand that these guidelines can change on a daily basis. While our actions will be driven by data and science, we will err on the side of caution, often choosing a more conservative course of action as our understanding of the situation evolves. URI safety culture includes COVID-19 precautions and is intended to ensure the safety of the entire URI community.* ***To that end, all students and instructors in CHM 101 are NOT required to wear masks in lecture settings.*** However, masks are welcomed, and it is expected that everyone will respect each other's choices.
6. ***Due to COVID-19 health considerations, DO NOT ATTEND class in person if you feel ill or under the weather in any way.*** Instead, you should get tested. Exceptions to the participation grade policies for illnesses will be considered on a case-by-case basis. See below for more details regarding URI's COVID/Viral Illness Policy.

Grading Procedures:

In-Class Participation	10%	In-class activities
Homework	15%	Homework assignments in ALEKS
Lab Grade	15%	Your overall lab grade/average (quizzes, reports, etc.). More details are on the syllabus for lab (see Lab Brightspace).
Quizzes	20%	Quizzes throughout the semester (your lowest quiz score will be dropped/excluded from your overall grade)
During-Semester Exams	20%	Three (3) during-the-semester exams
Final Exam	20%	Comprehensive final exam

Students bring a variety of backgrounds and expectations to a course like CHM191. My expectation is that by the end of the semester, each of you will demonstrate an acceptable level of understanding of the concepts and ideas in CHM191. Although grades are not the ultimate measure of your knowledge, abilities, or potential as a human being, they are useful guides to you and to others. Your individual accomplishments and understanding will be recognized by the letter grade you earn in this course.

Final course grades will be assigned as follows:

A	94-100%	**C+**	77-79%
A-	90-93%	**C**	74-76%
B+	87-89%	**C-**	70-73%
B	84-86%	**D+**	67-69%
B-	80-83%	**D**	60-66%
		F	<60%

How to be Successful in Chemistry

Learning is not an easy process, but the structure of the class includes multiple techniques to allow you to challenge yourself, test your understanding, and be supported as you learn the material. However, to be successful you must first take responsibility for your own learning. Additional tips to help you be successful include:

- Attend **every class meeting**
- Participate in class. Please **ask questions** when you do not understand something
- Take clear notes during lecture and **review your notes** soon afterward to help you construct and connect major concepts (and fill in any missing details)
- Read the assigned sections of the text before and/or after class and **ask yourself questions** along the way to check your understanding.
- Add more details to your lecture notes from your reading.
- Attend **Student Support Sessions** (**office hours)** as soon as you realize you need help! No appointment is needed during scheduled times. Make the most of your time by **bringing notes and homework so I can see your thought process.**
- You should work on chemistry at least 3 hours outside of class for every 1 hour spent in class (so **plan on learning chemistry at least 9 hours per week**)
- Consistently work the ALEKS problems. Do these in short increments (30 minutes – 1 hour), **5-6 days per week**. Working on these problems to test your understanding is crucial for mastering the material.
- Knowledge in chemistry is primarily measured by your ability to solve problems. Homework affords you the opportunity to apply your chemistry knowledge by working problems. They will also help you recognize areas where you need extra practice, have questions, etc.
- **Distinguish material that you understand from what confuses you! Spend your time studying the material you do NOT yet know. Reviewing ideas over and over that you already understand is not fruitful in helping you master material.**
- **Do not Google answers to problems!** Solving problems is how most of your learning will occur. Getting an answer is only just that – an answer. It does not help you learn the material and be able to apply that knowledge in other problems (including exams). You need to learn what to do when you have a problem that you do not know how to solve.
- **Do not be embarrassed to ask for help.** Chemistry is very abstract and difficult to grasp, so please ask questions and seek out help as soon as you realize you are falling behind. Talk to your classmates, lab partners, and/or your instructor when you are struggling.
- **Meet with classmates to teach each other chemistry outside of class.** You do not fully understand a concept unless you can explain it to someone else. If you cannot explain it to a classmate, this is your evidence that you do not understand the concept well enough, yet.
- Getting a tutor is an option, but do not forget that your instructors are tutors that you have already paid for! Come to Student Support Sessions (office hours), schedule appointments, send me emails, etc. **I am here to help you**.
- Working on problems and answering questions using notes and other resources is fine toward the beginning of your work with new concepts; however, you should **test yourself** many times before taking quizzes and exams. This means solving problems and answering questions in conditions you'll have during quizzes and exams (without your text, notes, with only commonly supplied resources, etc.).

Academic Integrity: You are encouraged to study together and to discuss information and concepts covered in lecture with other students. However, students are expected to be honest in all academic work. A student's name on any written work, quiz or exam shall be regarded as assurance that the work is the result of the student's own independent thought and study. Work should be stated in the student's own words, properly attributed to its source. Students have an obligation to know how to quote, paraphrase, summarize, cite and reference the work of others with integrity.

During all assessments (quizzes, examinations, and homework), you must do your own work. Any collaborative behavior during assessments will result in failure of the assessment, and will lead to further disciplinary action.

The following are examples of academic dishonesty:

- Using material, directly or paraphrasing, from published sources (print or electronic) without appropriate citation
- Claiming disproportionate credit for work not done independently
- Unauthorized possession or access to exams
- Unauthorized communication during exams
- Unauthorized use of another's work or preparing work for another student
- Taking an exam for another student
- Altering or attempting to alter grades
- The use of notes or electronic devices to gain an unauthorized advantage during exams
- Fabricating or falsifying facts, data or references
- Facilitating or aiding another's academic dishonesty
- Submitting the same paper for more than one course without prior approval from the instructors

Viral Illness Precautions Statement: The University is committed to delivering its educational mission while protecting the health and safety of our community. Students who are experiencing symptoms of viral illness should NOT go to class/work. Those who test positive for COVID-19 should follow the isolation guidelines from the Rhode Island Department of Health and CDC.

If you are unable to attend class, please notify Dr. Pratt prior to the start of class at justin.pratt@uri.edu.

Excused Absences: Absences due to serious illness or traumatic loss, religious observances, or participation in a university sanctioned event are considered excused absences. Students are responsible for work missed during an excused absence but will not be penalized by grading or assignment/exam make-up policies. Students should notify faculty in advance of absences due to religious observance or university-sanction events, and as soon as possible for other absences See University Manual sections 8.51.11-8.51.14 for details.

Anti-Bias Statement: We respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive. If you are a target or a witness of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at www.uri.edu/brt. There you will also find people and resources to help.

Mental Health and Wellness: We understand that college comes with challenges and stress associated with your courses, job/family responsibilities and personal life. URI offers students a range of services to support your mental health and wellbeing, including the URI Counseling Center, MySSP (Student Support Program) App, the Wellness Resource Center, and Well-being Coaching.

Disability, Access, and Inclusion Services for Students: Your access to this course is important. Please send me your Disability, Access, and Inclusion (DAI) accommodation letter early in the semester so that we have adequate time to discuss and arrange your approved academic accommodations. If you have not yet established services through DAI, please contact them to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom. DAI can be reached by calling: 401-874-2098, visiting: www.web.uri.edu/disability, or emailing: dai@etal.uri.edu. We are available to meet with students enrolled in Kingston as well as Providence courses.

University of Rhode Island Land Acknowledgment: The University of Rhode Island occupies the traditional stomping ground of the Narragansett Nation and the Niantic People. We honor and respect the enduring and continuing relationship between the Indigenous people and this land by teaching and learning more about their history and present-day communities, and by becoming stewards of the land we, too, inhabit.

Academic Enhancement Center: The Academic Enhancement Center (AEC) offers face-to-face and online services to undergraduate students seeking academic support. Services are based out of Roosevelt Hall, the Carothers Library room LL004, and online. Peer tutoring is available for STEM & BUS-related courses through the Drop-In Center and small-group tutoring. The Writing Center peer consultants offer feedback focused on supporting undergraduate writers at any stage of a writing assignment. The UCS 160 course and one-to-one Academic Skills Consultations offer strategies for improving studying and test-taking skills. Complete details about each of these programs, up-to-date schedules, contact information, and self-service study resources are all available on the AEC website, uri.edu/aec.

- **STEM & BUS Tutoring** helps undergraduate students navigate a variety of 100 and 200 level STEM & BUS courses through free peer tutoring in-person and online. Students can select occasional or weekly tutoring sessions through the TracCloud system or visit the Drop-In Center, located in the Carothers Library

lower level room LL004. The TracCloud application is available through URI Microsoft 365 single sign-on and more detailed information and instructions can be found at uri.edu/aec/tutoring.

- **Academic Skills Development** programs teach students how to manage time, study effectively, and address common academic challenges. **UCS 160: Success in Higher Education** is a one-credit course focused on developing strategic approaches to planning and studying. **Academic Consultations** are 1-on-1 meetings that help students identify and address individual academic challenges. Students can schedule sessions with Peer Academic Consultants on TracCloud or with Dr. David Hayes on Starfish.

- **Study Your Way to Success** is a self-guided web portal connecting students to tips and strategies on studying and time management related topics. For information or help with scheduling, contact Dr. Hayes directly at davidhayes@uri.edu.

- **The Undergraduate Writing Center** provides peer writing support to students in any class, at any stage of writing: from understanding an assignment and brainstorming ideas, to developing, organizing, and revising a draft. Writing consultations are available through: 1) 25- or 50-minute **in-person appointments**, 2) synchronous **online appointments**, and 3) asynchronous **written feedback.** Students can view availability and book online through URI Microsoft 365 single sign-on via the WCOnline (Undergrad) app. For more information, visit uri.edu/aec/writing.

Center for Career and Experiential Education: The Center for Career and Experiential Education (CCEE) supports undergraduate students with career preparation through one-on-one advising, 24-7 online resources, career education courses, and career events that prepare you for life after graduation and connect you with employers and community partners. Your Career Education Specialist (CES) is available to meet with you all year long, as early as your first-year, both in-person and virtually, to assist with exploring your career options, resume and cover letter writing, interview preparation, job and internship search, and more. We use Handshake to connect you to on and off campus jobs and internships and RhodyServes to connect you with volunteer opportunities in RI. Our team on the first floor of Roosevelt Hall can help you learn how to use Handshake effectively to find amazing opportunities. For more information or to meet with a CES, go to uri.edu/career.

Rhody Outpost Basic Needs Pantry: Food insecurity affects up to 30% of college students. That means you might not have enough food to get through a day or week, you don't have money to purchase groceries or personal products, or you are primarily eating foods that don't provide a lot of nutrition because they're all you can afford. This can all impact your academic success.

Rhody Outpost provides URI students who are food insecure with emergency food services and resources. The Outpost is housed at the Dining Services Warehouse at 10 Tootell Road, between Flagg Road and West Alumni Avenue. We are open every Friday from 3-5:30. Any student in need is welcome to visit the Outpost after filling out a brief request form.

If you have questions about food or housing insecurity, contact Barbara Sweeney, Coordinator of Food Security Outreach, at barbara_sweeney@uri.edu, or 401-874-5633. We want to help all students succeed and make URI a place with #NoRamHungry.

CHM 191 Course Schedule – Fall 2023 (subject to change):

Week #	Dates	Section(s) of Book to Read	Day of Week	Lecture Content
1	September 6-10, 2023	Chapter 1 (all sections)	W	Welcome & Logistics
			F	Start Chapter 1 (matter and units)
2	September 11-17, 2023	2.1-2.5, 2.7, 3.1	M	Finish Chapter 1 (units and sig. figs.)
			W	Build an Atom activity - **Bring a laptop to class**
			F	The mole, molar mass, and dimensional analysis
3	September 18-24, 2023	2.7 Chapter 3 (all sections)	M	Nomenclature Activity *(finish in recitation)*
			W	Empirical/Molecular formulas
			F	Chemical Equations & Balancing
4	September 25-October 1, 2023	4.1	M	Stoichiometry and Review
			W	**Exam 1 (9/27)** ***(Sept. 27 - Last Day to Drop Classes with no W)***
			F	Finish Stoichiometry, start Solutions, Molarity, Dilutions
5	October 2-8, 2023	4.2-4.5	M	Finish Solutions, Precipitation Reactions
			W	Acids, Bases, and Titration
			F	REDOX overview and different reaction types
6	October 9-15, 2023	Chapter 5 (all sections)	M	**No Classes – Indigenous Peoples' Day**
			W	Gas Laws & Pressure, Problem Solving (recitation)
			F	Kinetic Molecular Theory & Non-Ideal Gases
7	October 16-22, 2023	Chapter 6 (all sections)	M	Finish Gases Chapter
			W	Thermodynamics, Energy, and Enthalpy ***(Oct. 19 - Last Day to Drop Classes with a W)***
			F	Enthalpy, Calorimetry, Stoichiometry
8	October 23-29, 2023	Chapter 6 (all sections), 7.1, 7.2	M	Review - **Exam 2 (10/23 during recitation)**
			W	Stoichiometry and Hess's Law
			F	Light and Electromagnetic Spectrum
9	October 30-November 5, 2023	7.2-7.4, 8.1-8.2	M	Finish Light and Atomic Structure
			W	Quantum Model of Atom and Orbitals
			F	Electron Configurations
10	November 6-12, 2023	8.2-8.4	M	Finish Electron Configurations
			W	Periodic Trends
			F	**Nov. 11 – No Classes – Veterans Day**
11	November 13-19, 2023	Chapter 9 (all sections)	M	Models of Bonding & Lewis Symbols
			W	Bond Energy, Chemical Changes, Electronegativity
			F	Electronegativity & Bond Polarity, Metallic Bonding
12	November 20-26, 2023	11.1-11.3	M	Review - **Exam 3 (11/20 during recitation)**
			W	Theories of Covalent bonding (hybrid orbitals, orbital overlap)
			F	**Nov. 24 – No Classes – Thanksgiving Break**
13	November 27-December 3, 2023	Chapter 10 (all sections) 12.1 & 13.1	M	Molecular Geometry Activity - **Bring a laptop to class** *(Finish in recitation)*
			W	Start Intermolecular Forces Activity
			F	Finish Intermolecular Forces Activity
14	December 4-10, 2023	12.2-12.3 13.1-13.2	M	Energy and Phase Changes
			W	Solutions, Solubility, and Energy
			F	*Flexible day (other advanced Topics OR finish up previous material)*
15	December 11-17, 2023	12.4-12.6 13.3-13.5	M	Finish, Practice, Review ***(Dec. 12 – Last Class of the semester!)***
Final Exam	December 15, 2023	**Final Exam – Friday, December 15 from 3:00-5:00 pm** URI Final Exam Schedule		