

Chemistry 191 - General Chemistry I

Course Syllabus

Fall 2021

Instructors:

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Office hours: Th 1:00 pm or by appointment

Scheduling:

Lecture: MWF 1:00 pm, Beupre 105

Recitation: M 2:00 pm, Beupre 105

Laboratory Section 1: Tu 8:00 am – 10:45 am, Beupre 165

Laboratory Section 2: Th 8:00 am – 10:45 am, Beupre 165

Objectives:

Learn general concepts and theories of chemistry

Develop and improve quantitative problem solving skills

Learn basic techniques and methods in the chemistry lab

Apply basic principles of chemistry to new problems and situations

Textbook:

General Chemistry: Principles & Modern Applications (11th Edition), by Ralph H. Petrucci, F. Geoffrey Herring, Jeffry D. Madura, and Carey Bissonnette, Pearson, 2016.

Prerequisites:

Chemistry major. Not open to students with credit in CHM 101.

Grades:

Your final grade will be calculated from the following:

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| a. Weekly 15-minute quizzes (two lowest dropped*) | 35% |
| b. Three 50-minute exams (including final exam) | 45% |
| c. Laboratory (see lab syllabus for more details) | 20% |

*If a student is caught cheating during a quiz, a grade of zero will be entered for that quiz, and that grade **will not be dropped**.

Please note that changes to the syllabus may be made to account for unforeseen circumstances (weather, etc.), but students will be notified in advance of any changes.

Grades will be determined using a combination of an absolute scale and a curve. To pass CHM 191, at least 40% of the points must be earned. To obtain a C- or higher (required to move on to CHM 192), at least 50% of the points must be earned. The remainder of the grades are determined using a curve. Based on past experience, the median of the curve tends to be a C. Incompletes are given only for valid medical reasons, and a note from a medical professional is required.

Quizzes and exams will generally focus on the most recent material covered in class, but all material covered up to that point is fair game as well. Many different concepts covered throughout the course may be covered in a single question. Chemistry is a cumulative discipline, so it is important to develop a holistic understanding of all the material rather than thinking of chapters in the book as unrelated units.

Chemistry is also laboratory science, and the laboratory portion of this course is essential to mastering the subject. For the laboratory portion of CHM 191, **any student who does not submit at least 6 lab reports on time for grading will receive an F as their FINAL grade in CHM 191.** Students who submit only 6 or 7 laboratory reports on time for grading will receive 0 points for the entire laboratory portion of the course. Keep in mind that the laboratory portion of the course represents 20% of the total possible points.

Overview:

CHM 191 is the first semester of the full-year general chemistry course sequence for students who have declared a major in chemistry. Most generally, this semester we seek to understand the fundamental nature of matter from an atomic and molecular perspective. We will introduce basic concepts from thermodynamics and quantum mechanics and build toward a physical picture of chemical bonding and reactivity. This course provides a conceptual framework that is absolutely crucial to master before continuing in more advanced studies in chemistry.

The course includes three lectures, one recitation section, and one three-hour laboratory period per week. Success in CHM 191 requires that you attend and satisfy the requirements of all three aspects. You will receive a separate syllabus for the laboratory portion of the course. The laboratory experiments are designed to illustrate the principles learned in the lecture/recitation parts of the course.

The lecture and recitation section portions of the course are closely coupled. Most recitation sections will begin with a 15 minute quiz covering the material from the previous chapter followed by a review of the quiz solution(s). The remainder of the recitation section will be used as a short lecture period. In a few cases, the entire recitation section will be used as a second lecture period. **NOTE: Except for Quizzes 6 and 7, all quizzes will be held during recitation sections. Attendance is therefore required for all recitation sections.**

Success in CHM 191 requires constant practice in solving problems. To help with such practice, problem sets are to be posted on the CHM 191 web page each week. The problem sets will not be collected and graded, but the problem sets are most helpful if they are treated as if they are to be collected and graded. After a period of time, solutions to the problem sets will also be posted. **You are strongly encouraged to try to solve the problems by yourselves before examining the solved problems.** Keep in mind that it is far easier to understand a solution to a problem than it is to solve the problem on your own during quizzes and exams. It is exceedingly unlikely that a student will be successful in the course without reading the textbook thoroughly and putting several hours of effort into each problem set before consulting the solutions!

The problem sets are designed to incorporate many different concepts into complex problems and will generally have many components. While these problems provide the best practice for quizzes and exams, practice with basic skills will occasionally be provided through supplemental problem sets. You are also strongly encouraged to work through simpler problems from the textbook to strengthen your understanding of the concepts covered in class. Finally, if you purchased a new

physical copy or a digital copy of the textbook, you also will have access to Mastering Chemistry, the publisher's online interactive system.

The CHM 191 Brightspace page:

All lecture notes, recorded lectures, problem sets, problem set solutions, quiz solutions, exam solutions, and grades will be posted on the course Brightspace page. No paper copies of the problem sets or syllabi will be distributed.

Extra help:

Many of you will find that you need additional in-person assistance to master the course material and problem solving in general. I will be available for **in-person or virtual** office hours at various times throughout the week. Please email me (dugan@uri.edu) to set up an appointment.

Attendance:

Attendance at lectures is neither required nor enforced, but it is exceedingly unlikely that a student who does not regularly attend lectures will be successful in CHM 191. However, **attendance is required for all quizzes and exams**. Occasionally, students may miss quizzes and exams due to illness, severe weather, or university sanctioned events. **If ill, students should not attend class and should seek medical attention**. If the university announces that classes are cancelled due to severe weather, any quiz or exam scheduled for that day will be cancelled and rescheduled for the next possible class period.

If a student must miss a scheduled quiz or exam due to a religious holiday or university sanctioned event, the student must inform me at least a week in advance (preferably as soon as possible) so we can plan accordingly. The student will then take a comparable exam after the scheduled date at the Academic Testing Center and sign a pledge attesting that the exam material had not been discussed with classmates. In the case of an unscheduled absence (illness, accident, personal tragedy, etc.), the student will be given a comparable exam at a later date.

Disability Services for Students:

Your access in this course is important. Please send me your Disability Services for Students (DSS) 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 DSS, please contact them to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom. DSS can be reached by calling: 401-874-2098, visiting <http://web.uri.edu/disability> or emailing dss@etal.uri.edu.

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 <http://www.uri.edu/brt>. There you will also find people and resources to help.

Academic Enhancement Center:

Located in Roosevelt Hall, the AEC offers free face-to-face and web-based services to undergraduate students seeking academic support. Peer tutoring is available for STEM-related

courses by appointment online and in-person. The Writing Center offers peer tutoring focused on supporting undergraduate writers at any stage of a writing assignment. The UCS160 course and academic skills consultations offer students strategies and activities aimed at improving their 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, <http://web.uri.edu/aec>.

COVID-19 Statement:

The University is committed to delivering its educational mission while protecting the health and safety of our community. While the university has worked to create a healthy learning environment for all, it is up to all of us to ensure our campus stays that way.

As members of the URI community, students are required to comply with standards of conduct and take precautions to keep themselves and others safe. Visit web.uri.edu/coronavirus/ for the latest information about the URI COVID-19 response.

- [Universal indoor masking](#) is required by all community members, on all campuses, regardless of vaccination status. In CHM 191, masks are required for the entire semester.
- Students who are experiencing symptoms of illness should not come to class. Please stay in your home/room and notify URI Health Services via phone at 401-874-2246.
- If you are already on campus and start to feel ill, go home/back to your room and self-isolate. Notify URI Health Services via phone immediately at 401-874-2246.

If you are unable to attend class, please notify me prior to the start of class at 401-874-5516 or dugan@uri.edu.

Material covered:

09/10 – 09/15	Chapter 1	Matter: Its Properties and Measurement
09/17 – 09/24	Chapter 2	Atoms and Atomic Theory
09/24 – 10/01	Chapter 3	Chemical Compounds
10/01 – 10/06	Chapter 4	Chemical Reactions
10/08 – 10/15	Chapter 5	Reactions in Aqueous Solutions
10/18 – 10/25	Chapter 6	Gases
10/25 – 11/01	Chapter 7	Thermochemistry
11/01 – 11/15	Chapter 8	Electrons in Atoms
11/15 – 11/22	Chapter 9	The Periodic Table and Some Atomic Properties
11/22 – 12/01	Chapter 10	Chemical Bonding I: Basic Concepts
12/03 – 12/10	Chapter 11	Chemical Bonding II: Valence Bond and MO Theories
12/10 – 12/13	Chapter 12	Intermolecular Forces: Liquids and Solids

Important dates:

09/08	First class
09/20	Quiz 1
09/27	Quiz 2
09/29	Last day for dropping without a “W”
10/04	Quiz 3
10/11	No class (Indigenous Peoples’ Day)
10/13	Quiz 4
10/18	Exam 1
10/20	Last day to drop classes
10/29	Quiz 6 (NOTE: Friday quiz, no Quiz 5)
11/05	Quiz 7 (NOTE: Friday quiz)
11/10	No class (Thursday class schedule)
11/15	Quiz 8
11/19	Exam 2
11/26	No class (Thanksgiving recess)
11/29	Quiz 9
12/06	Quiz 10
12/13	Last class
12/15*	Final Exam, 3:00pm – 4:00pm

*Check online for date/time change