



Course Title: **Introductory Chemistry and Lab (Chem 101(L))** Credits: **3(+1)** Semester & Year: **Fall 2021**
 Campus: **Toppenish** Room: **Violet Lumley Rau Center, 1701**

Instructor: **Dalia Maraoulaite, PhD**

Office Hours: MW 9:00 – 10:00AM or By Appointment

Office: <https://heritage.zoom.us/j/99045059860>

Email: Maraoulaite_D@heritage.edu

Cell (for texting): 509-426-4624

Instructor: **Karolynn Tom, MS Biochem., MS YDL**

Office Hours: MW 9:00 – 10:00AM or By Appointment

Office: 2342 Arts and Science Building

Email: Tom_K@heritage.edu

Cell: 509-728-1054

Course Description and Prerequisites:

Introduction to basic concepts of chemistry: measurement, properties, atomic theory, structure, periodicity and bonding, pH, neutralization equations and calculations, heat of reaction, gas laws, solutions, acidity, and oxidation-reduction.

Prerequisite: MATH 96. Offered fall and spring semesters.

Course Schedule:

Lecture: MWF 8:00 – 8:50 AM (Friday lectures will be usually held online, unless otherwise noted)

MW in person in **Violet Lumley Rau Center, 1701**

Friday lectures will be usually held online, unless otherwise stated

Laboratory: F 9-11:45 AM

<https://heritage.zoom.us/j/99045059860> (Zoom) - Laboratory will be held online

Course Objectives:

To study the structure and reactivity of chemical compounds, and to develop the skills to solve elementary problems in introductory chemistry. Upon completing the course, students will have the ability to *analyze* simple reactions and *predict* the outcome of reactions, even ones that have not explicitly been discussed.

Learner Outcomes, Heritage Outcomes, Performance Indicators, and Assessment Methods/Codes:

| LEARNER OUTCOMES (KNOWLEDGE & SKILLS) | *UNIVERSITY GOAL ALIGNMENT CODES | PERFORMANCE INDICATORS (EVIDENCE) (Products and Performance—Higher levels of Bloom's Taxonomy) | **ASSESSMENT METHODS/CODES |
|--|----------------------------------|--|----------------------------|
| Students possess the knowledge of the physical world and scientific methodology necessary to engage in informed discussions regarding currently relevant issues in science and society. (Outcome 1a) | Knowledge (a) and Skills (a) | Achieve Homework; Achieve Quizzes; Final Exam; Laboratory worksheets | SR, E, P, PC |

*Student Learning Outcomes

1. Knowledge of the Physical World and of Human Cultures; 2. Intellectual and Practical Skills; 3. Personal and Social Responsibility; 4. Integrative and Applied Learning

**Assessment Methods/Codes

Selected Response (constructed tests), Code = **SR**;

Essay—written (free response), Code = **E**;

Performance (lab skills, products, and presentations), Code = **P**;

Personal Oral communication (interviews, conferences, oral examinations, formative questioning), Code = **PC**;

Self-reflection, Code = **SR**

Texts and Study Aids:

Textbook (Check out from Library) – Introductory Chemistry. 2nd Ed. By Nivaldo Tro. ISBN-13: 9780131470583

Achieve Online Course Access: register for the class here: <https://achieve.macmillanlearning.com/courses/ua5spd>

Calculators – ONLY non-programmable calculators with LOG, LN, and square root functions will be allowed for exams and quizzes. Check with Dr. Maraoulaite if you are unsure whether you may use your calculator for exams.

~~**Chalk and Wire** – This course requires the purchase of E-Portfolio/Chalk & Wire. If not already purchased, please contact the HU Bookstore, 509-865-8500.~~

Model Set (Optional) – you don't need a model kit, but you might find it helpful for the molecular geometries chapter if you are a kinetic learner and like 3D puzzles

(Option 1) [This Model Kit on Amazon](#) is quite good (this is the simplest smallest kit, but there are larger versions of this set)

(Option 2) [HGS Organic Chemistry Set for Students, #1013A](#) (recommended if you plan on taking organic chemistry with Dr. Miller). Distributed by Maruzen.

Optional: Student Solutions Manual for Introductory Chemistry. 2nd Ed. By Nivaldo Tro and Matthew Johll.

ISBN-13: 9780131470828 (there is a copy on reserve at the Library, however, it may be problematic to get access to it due to COVID-related restrictions)

Lab Goggles (not needed this semester) – due to COVID-related restrictions, labs will be help remotely online (virtual labs), so you do not need goggles this semester.

Course Website:

<https://myheritage.heritage.edu/ics>. The first time you log in, you may be prompted to change your password. Make sure you change it to something that is secure and that you will remember.

'Achieve' from Macmillan Learning:

<https://achieve.macmillanlearning.com/start> We will use Achieve online course materials this semester for your *homework, chapter quizzes, and online laboratory activities*. The first time you log in, you may be prompted to change your password. Make sure you change it to something that is secure and that you will remember.

Help and Resources:

- E-mail your questions and comments to the instructor! Every attempt will be made to respond to each message quickly and thoroughly within 24 hours, except weekends.
- Use the Course Website! This is where course materials are posted, including Lecture videos, PowerPoint lecture handouts, YouTube & JOVE videos, and other materials.
- Utilize Tutoring! The Academic Skills Center provides tutoring on a drop-in basis and by appointment, and includes 24/7 access to tutoring through Smartthinking: https://myheritage.heritage.edu/ICS/Student_Services/Academic_Skills_Center/.
- Join the CRESCENT Program Study Hall! For more information, contact Karolynn Tom at Tom_K@heritage.edu

Assessment and Grading Procedures:

The Chem 101 course grade is based on a *1510 point scale. The points are earned by performance on Achieve online homework assignments (~20%), Achieve online quizzes (~10%), laboratory worksheets (~17%), midterm exams (~33%), and a cumulative final exam (~20%). The breakdown is as follows:

| <u>Assignment</u> | <u>Points</u> |
|---|---------------|
| Achieve Online Homework | 300 |
| 6 Midterm Exams (100 pts. each; drop low score) | 500 |
| Chapter Quizzes | 150 |
| Laboratory Activities | 260 |
| Chem 101 Cumulative Final Exam..... | 300 |
| Total Points Possible..... | 1510 |

* The instructor reserves the right to modify the number of points in each category and total in the class somewhat by omitting or adding certain graded activities to fit the class schedule, but overall structure of the course (percentages corresponding to each category) will remain as outlined.

The criterion grading scale is used for this class along with additional modifiers. In addition, if you meet the criteria stated for one of the modifiers, **your course grade could be even higher** than what is established by the criterion scale. Students are encouraged to discuss their performance with the instructor at any time during the semester.

The Chem 101L laboratory course grade will be the same as the Chem 101 lecture grade. However, at least a 70% (a “C”) average *lab score* is required to pass Chem 101 & Chem 101L. ***For modifier eligibility, the student must complete and submit ALL lab assignments.***

Criterion Based Grading Scale

| <u>Points Earned (%)</u> | <u>Final Grade</u> |
|---------------------------|--------------------|
| 1116-1200 (93.0-100.0%) | A |
| 1080-1115.9 (90.0-92.99%) | A- |
| 1044-1079.9 (87.0-89.99%) | B+ |
| 996-1043.9 (83.0-86.99%) | B |
| 960-995.9 (80.0-82.99%) | B- |
| 888-959.9 (74.0-79.99%) | C+ |
| 792-887.9 (66.0-73.99%) | C |
| 720-791.9 (60.0-65.99%) | C- |
| 684-719.9 (57.0-59.99%) | D+ |
| 636-683.9 (53.0-56.99%) | D |
| 600-635.9 (50.0-52.99%) | D- |
| 0-599.9 (0.0-49.99%) | F |

Grade on Final Exam Modifier

For this modifier to be used, you must have completed 90% of your online homework, chapter quizzes, and labs (no prorating). If you meet the criteria mentioned in the previous sentence, your final grade for the course is guaranteed to be no less than the letter grade corresponding to the percentage of points earned on the final exam, based on the criterion grading scale. (For example, students X and Y have completed all assignments and exams prior to final exam. Student X gets 245/300 on final exam (81.7%) and is guaranteed a minimum grade of B- for the course. Similarly, student Y gets 276/300 on final exam (92.0%) and is guaranteed a minimum grade of A- for the course, etc.)

Significant Improvement on Exams Modifier

For this modifier to be used, you must have completed 90% of your online homework, chapter quizzes, labs (no prorating), and have taken the cumulative final exam. If your percent deviation from the mean increases by a minimum of 5% on each subsequent exam after the first exam and you are within 1% (12 points) of a grade cutoff point established by the criterion grading scale, your final grade will be raised one step (i.e., B to B+, C+ to B-, etc.).

Other Modifiers

The instructor reserves the right to offer additional final grade modifiers to the entire class using objective criteria as desired at any time during the course. The instructor also reserves the right to invoke a normative grading scale to establish final grades should it be deemed necessary.

Academic Honesty (excerpt from Heritage University Catalog)

Heritage University students have the responsibility to adhere to academic honesty in all their educational endeavors. Faculty has the responsibility to model academic honesty and to prevent, detect, and confront students who violate it. Academic dishonesty is serious and will carry appropriate sanctions ranging from a written record of the violation being placed in the student’s file, to course failure, and even to suspension or dismissal from the university. Academic dishonesty includes, but is not limited to, cheating, plagiarism, and all behavior inconsistent with academic integrity and honesty.

Attendance:

Regular attendance and participation in classes is expected and considered essential for successful academic work. Due to COVID-related restrictions, some lectures and all labs will be held online using Zoom. Attendance will be documented every class period. If an unavoidable absence occurs, communication is essential. Contact me *in advance* to make arrangements, or as soon as possible for emergencies, and take responsibility for the class work missed. Remember that Heritage University Student Affairs is ready to help solve problems that interfere with attending class. Call them at 509-865-0440, ext. 2001, or email them at studentaffairs@heritage.edu. However, if we do not hear from you, the *Heritage University Catalog* attendance policy states “a faculty member may recommend an administrative withdrawal [from a course] whenever a student misses two consecutive class sessions and does not contact the

instructor.” Prior to any such action, we will submit a Faculty Advocacy request asking Student Affairs to contact you. Your success in this class is my primary goal, and we look forward to seeing you at every class session.

Please, keep your camera ON during Zoom lectures.

Credit Hour Requirements:

Federal regulations require that all courses follow the Heritage University definition of a credit hour as described in HU Policy. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

- (1) One hour of classroom or direct faculty instruction and a minimum of two hours of out of class student work each week for approximately fifteen weeks for one semester, or
- (2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit.

Campus Security & Safety:

In an emergency, call 911. The University has an emergency notification system that allows students to receive notifications via email and text message to inform students of on campus emergencies and campus closures. You are encouraged to enroll in Rave Mobile Safety program by logging into <https://www.getrave.com/login/Heritage>. Free to the student and standard text rates apply.

Heritage University Campus Security: 509-961-4674

Heritage University Weekend Security: 509-314-9314

Regional Sites, please reference the Host Campus Security and Emergency safety plan.

Important Information: Disability Policy

Current law describes ‘disability’ as a physical or mental impairment that substantially limits a major life activity of an individual. As an institution of higher learning Heritage University wishes to make reasonable accommodation to students with disabilities. If you believe you have a disability which may warrant an accommodation, the first step is to contact Dr. Melissa Hill in Student Affairs on the Heritage University Campus (Toppenish) or call her at 509-865-0411 (or 509-865-8500 ext. 5807) or e-mail (hill_m@heritage.edu). You may also ask your instructor for assistance in communicating with Student Affairs.

Achieve Online Course:

We will be using an online learning homework system called Achieve this semester. Points for Achieve homework will be based on completing each chapter's homework within all the sections. Achieve also provides feedback and practice on any mathematics skills necessary to the course, though these are optional.

To enroll in the Achieve Online Course, follow this link:

<https://achieve.macmillanlearning.com/courses/ua5spd>

Homework Guidelines:

- All homework assignments are available to the students for the entire duration of the course, *however*
- Each homework assignment must be completed by the Due Date in order for the student to receive a grade.
- You have an unlimited number of attempts for each question.
- There is no penalty for “wrong answers”

Problem Set Homework in your Textbook:

Students should attempt all odd numbered problems and all conceptual understanding problems in each chapter. Answers to these are provided in the back of the textbook. Homework problems from the textbook will not be graded, but problems from the homework often end up on exams, so it is in your best interest to do them.

You are responsible for trying all of the odd-numbered homework problems, even if the topic has not been discussed in the lecture. In fact, students ***are expected*** to engage and learn material that will not be covered in lecture for two reasons: 1) the real world demands college graduates to pursue, assimilate, and utilize information obtained from their own motivation; 2) it is simply not possible to address every detail of general chemistry in the lecture time allotted, yet future science coursework will hold students responsible for mastery of the requisite general chemistry knowledge.

Exams

Midterm Exams:

Exam 1: Wednesday, September 8th: 8:00 – 8:50 AM

Exam 2: Wednesday, September 22th: 8:00 – 8:50 AM

Exam 3: Friday, October 8th: 8:00 – 8:50 AM

Exam 4: Wednesday, October 27th: 8:00 – 8:50 AM

Exam 5: Monday, November 15th: 8:00 – 8:50 AM

Exam 6: Wednesday, December 1st: 8:00 – 8:50 AM

Chem 101 Cumulative Final Exam: (TBA)

Cumulative Final Exam: Monday, December 6th: 7:00 – 9:45 AM

Exam Guidelines:

The following exam guidelines are listed to provide assurances of testing fairness, efficiency, and order to all students.

1. Exams can only be taken during the above specified times. No makeup exams are given. If a student must miss a midterm exam due to personal illness, family emergency, or school-sanctioned event **only** (documentation and/or letter from the Vice-President of Student Affairs must be provided), the exam score will be prorated based on the weighted average of the percentage from the other exam scores. If a student misses more than one midterm exam for any reason or has an unexcused absence from any exam, the student receives a failing grade for the course. The final exam must be taken at the scheduled date and time without exceptions. Note: Weddings, personal vacations, pre-purchased plane or bus tickets, or anything else not covered above do **NOT** constitute a family emergency or a school-sanctioned event. Enrollment in this class constitutes acceptance of the terms of this syllabus.
2. ***Programmable calculators, computers, cell phones, pagers, palm pilots, or other data-saving/text-saving devices are not allowed during the exam.*** This includes all TI-80 and higher series calculators or any other calculator deemed illegal by the instructors or proctors. If there is any question about this, please see your instructor.
3. Have your picture ID, writing utensils, ruler, non-programmable calculator, and molecular models (if needed) ready with you before the exam.

4. Exams must be completed in BLUE or BLACK INK. No other color ink will be allowed for use on exams. Students may complete the exam in pencil, but exam regrades will not be allowed except for My Heritage score errors or misadded points.
5. Students will need to arrive at the testing site no later than 10 minutes *before* the starting time of the test to have ID's (and calculators) checked by the instructor and to be seated.
6. The exam starts and ends promptly at the stated times. Students who arrive late to the exam forfeit the lost time and have only up to the scheduled ending time to finish.
7. When the exam time has concluded or when you have finished your exam, you must submit the exam to the instructor who will then check you off the list as having submitted the exam. Any student who has not been checked off of an exam submission list is considered absent from the exam and will receive zero points for that exam. It is *your* responsibility to ensure that your instructor has checked your name off after submitting the exam, so credit for having taken the exam is awarded.
8. Requests for exam re-grading must be made as specified in class. A written explanation of the purported error must accompany the request.

Quizzes

After completing the chapter homework, you will be able to demonstrate your mastery of the material by completing an online quiz. Quizzes are intended to help you avoid procrastination and to help you evaluate the level of your preparedness for the exam. Quizzes will be posted on Achieve for you to take whenever you have time by the set deadline, which will be before the corresponding exam. There will be 15 quizzes (one for each of the 15 chapters) each worth 10 points. You will have 1 hour to complete each quiz. You are expected to complete chapter quizzes on your own time (outside of class).

Exam/Quiz Guidelines:

The following quiz guidelines are listed to provide assurances of testing fairness, efficiency, and order to all students.

1. Chapter Quizzes will become available to the students throughout the course.
2. The deadline for completion of the Chapter Quiz is the same as the Chapter Homework deadline.
3. A 10% penalty is administered per each day the quiz is late for up to 3 days.
4. You only have one attempt to take a quiz.
5. No makeup quizzes will be given.

Laboratory

Due to COVID, all Laboratory Activities will be carried out in remote/online format. Laboratory simulations are our best bet in these circumstances. For each simulation, you will be given a worksheet to complete. Each worksheet will be worth 20 points. The plan is to have 13 laboratory activities/worksheets this semester. These points will count towards your final grade in CHEM 101 *and* CHEM 101L.

*****The final laboratory grade will be the same as your class grade.*****

In order to pass Chem 101, your average laboratory score must be 70% or above.

Course Policies, Details, and Culture

Heritage University academic integrity policies are strictly enforced! For more information, see Student Code of Conduct: <http://catalog.heritage.edu/content.php?catoid=13&navoid=903> The #1 type of cheating that students get nailed for is copying of materials on assignments that are found elsewhere (i.e., using material from another person's assignment, students working together who submit verbatim writing on the assignment, taking items off the internet without permission of the author, etc.) Most of this comes from students who collaborate with others while producing the assignment.

Here is a *strong* recommendation for how to work with others without getting accused with cheating. Collaboration with other students to learn how to solve problems is acceptable and encouraged. But when you go to produce your assignment (i.e., writing your name on paper or on a computer), GO YOUR SEPARATE WAYS!!! Complete your own assignment away from others. Answers to problems that were constructed with colleagues should be rewritten in your own words. NEVER copy catch phrases or statements directly from another colleague. Rewrite everything you do from a group setting in your own words. This should minimize the likelihood that you will be accused of cheating.

Remember that in science, one's word is all that one has. When you say that you have discovered something to the scientific community, your credibility is all that separates success from disgrace. If you are found to be a liar, a cheat, or a thief just once, your career in science is over. No grade in a class is EVER worth having your integrity questioned. If you have questions about this, please see me!

You may bring your model sets to class. Not only do they help the kinetic learner to see and manipulate molecules in three dimensions, but they also make stereochemical analyses easier to visualize. They will be used during lectures to illustrate points and can be used on exams, so go ahead and bring them!

Introductory chemistry is best learned by engaging the material every day and in parts. Waiting until the last minute to study will leave an overwhelming amount of material to be learned in too little time. Consistency and discipline are the keys to success.

We frequently get the question, "How much time will I need to study for this course?" There is no single correct answer, but a Rule of Thumb is to spend 2 hours of study per 1 hour of class. Schedule time to study. Be consistent. Slow and steady does it. Binging chemistry Does Not Work.

Studies show that a single predictor of student success in college (whether they graduate or not) is whether they pass chemistry. If you have not passed chemistry yet, this is because you did not put in the time and the work.

Chemistry REQUIRES *good study skills*.

That is, you must be self-motivated to complete the given assignments in a timely manner. All that is required of you is that you *do your homework* and *study the material* (including practice problems in the provided previous exams) to do well on exams.

When something does not make sense to you, OPEN YOUR TEXTBOOK and re-read the sentence until it makes sense! Look at the example solutions if you cannot solve a particular HW problem.

Students are encouraged to collaborate on homework problems and discuss concepts and issues on the My Heritage discussion forum. Students are encouraged to attend CRESCENT study hall (ask me about it via email), to attend group tutoring and individual tutoring sessions.

However, it is expected that students will complete the assignments, labs, and worksheets on their own. Each individual must work to obtain the analytical and drawing skills needed to solve the kinds of questions asked on examinations. You will hone these skills as you write out solutions to the practice problems.

Finally, **YOU ARE NOT ALONE**. Your instructors are committed to helping you learn so long as you put forth the effort. Exam review sessions, discussion sections, lecture notes, lecture videos, e-mail, and finally face-to-face activities are all resources at your disposal to answer questions and to help you succeed in this course. Please feel free to contact us at any time with any questions or concerns you may have. We are looking forward to an outstanding semester and are honored to be your guide into the exciting world of introductory chemistry!

- Dr. Maraoulaite and Professor Tom