

General Chemistry I Syllabus

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General Chemistry I

CHEM 111 Syllabus

Fall 2022

Section 1: General Information

Instructor: <PROF_FULL_NAME>

Email: <PROF_EMAIL>

Preferred communication using the "Send message" tool in OWL.

Lecture Schedule and location: Tuesday and Thursday 1 pm-2:15 pm in-person in ISB 135.

Health and Safety in the classroom: It is recommended (not mandatory) that you wear a mask in the classroom as an additional protection for our community.

The University mandated that a vaccinated instructor could choose to go unmasked while teaching if they can maintain at least six feet from where students are sitting in the classroom. Therefore, for you to be able to hear in the big lecture hall clearly, I will be unmasked while teaching. I will maintain at least six feet of distance from you. I am fully vaccinated, and I will make sure to keep that distance all during the lecture. I am going to put the mask back on once I finish the class.

Office Hours: I will be holding regular online office hours through Zoom. The link, days, and times are posted on Moodle. I set the Zoom office hours so that I will be helping one student at a time for your privacy while setting the others in a virtual waiting room. If you prefer to meet in person, please send me an email with your availability, and I can schedule you for in-person office hours. Also, all questions sent by email will be answered within 24 hours (I do not check my emails during the weekend). The subject of the email must contain "**Chem111 office hours**".

Section 2: What will you learn in this course?

CHEM 111 is the first half of a two-semester sequence. The course provides you with an introduction to the physical and chemical behavior of matter. After completing this course, you should be able to:

- Think analytically and critically about a problem.

- Use the scientific method to solve a problem.
- Articulate and communicate your understanding of atoms, elements, and compounds.
- Articulate and communicate your understanding of the 3D structures of molecules and the effect of that on their properties.
- Articulate and communicate your understanding of bondings in molecules and molecular orbitals.
- Articulate and communicate your understanding of the concepts of thermochemistry.
- Articulate and communicate your understanding of chemical reaction balancing and types.

The general education requirements at UMass ask you as a student to engage with a broad subject base, learning *content*, exercising *critical thinking*, practicing *communication*, and forming *connections* using the topics and techniques from fields outside of their major. The course will help you grow analytical reasoning, critical thinking, complex problem solving, mathematical acumen, logical argument, and other life skills. In this class, we work on these skills using the language and concepts of chemistry. These skills are transferable to any field.

This course satisfies the physical science General Education requirement (P.S.). The aim of GenEd is to help you develop mature, broad, transferable skill sets that are not limited to one particular discipline or profession.

Section 3: Math Knowledge/skills you need for this course

A grade of C⁻ or higher in Math 104, or Math 101 and Math 102. Or a score of 20 or higher on Part A of the Math Placement Exam.

I encourage you to take advantage of the Math assignment I posted on OWL to quickly review the skills and knowledge you need for this course.

Section 4: Disability Accommodation and Inclusive Learning Statement

The University of Massachusetts Amherst is committed to making reasonable, effective, and appropriate accommodations to meet the needs of students with disabilities and help create a barrier-free campus. If you have a disability and require accommodations, please register with Disability Services (161 Whitmore Administration building; phone 413-545-0892) to send an accommodation letter to your

faculty. Information on services and materials for registering is also available on their website www.umass.edu/disability

Your success in this class is essential to me. We all learn differently and bring different strengths and needs to the class. If there are aspects of the course that prevent you from learning or make you feel excluded, please let me know as soon as possible. Together we will develop strategies to meet both your needs and the requirements of the course.

Section 5: Required Materials

- **Custom Instant Access Code for OWL** General Chemistry, Authors - Vining, Young, Day, Botch, 1st Edition.
<LINK_OWL>
If you have a paper copy of the textbook, you still need to buy an access code for OWL.
You can buy it through **Books by eCampus**
- i>clicker2 Transmitter (ISBN13: 9781319152956) - purchase through eCampus.
- Calculator capable of doing: logarithms, antilogs, and scientific notation.
- Safety glasses for the lab.

Section 6: Academic Assessment (Grading)

Your performance in my class is as important to me as it is to you. We are going to use eExams, H.W., and your lecture attendance and engagement (iclicker 2) as learning and assessment tools in this course. This may be your first chemistry course, yes chemistry courses need more effort than other courses, but if you work for an A, you are going to get an A.

The approximate grade scale (the following scale is subject to changes depending on the average of the class and other statistics):

- A 90-100% (this scale includes A and A-)
- B 80-89% (this scale includes B, B+, and B-)
- C 70-79% (this scale includes C, C+, and C-)
- D 60-69% (this scale includes D and D+)
- You must have a grade of C- or better in this course (CHEM111) to take CHEM112.

I care about your success! This course is taking part in the student success "Early Alert" initiative. You may receive an email from me and/or an academic advisor from the CNS Advising Center reaching out to you. Early Alert is designed to help you evaluate your current grades, study skills, and your class

attendance so that you know if you are on the right track. If you need to make some changes, there are resources available to support your academic success. Check the "how to get help" section.

Evaluation and Assessment:

Mark your calendar for the following:

	Total Points	Date	Chapters included	Location	Duration
Exam 1	100 pts	11 Oct/Tuesday	Ch 1, Ch 2 and Ch3	*eExam in the general chemistry. I will provide you with a laptop to take the exam.	70 mins
Exam 2	100 pts	4 Nov/Friday	Ch 4, Ch 6 and Ch7	Same as above	70 mins
Exam 3	100 pts	2 Dec/Friday	Ch 8, Ch9 and Ch10	Same as above	70 mins
*Final	100 pts	Check the Spire page	Cumulative	Same as above	70 or 90 mins to be determined.
iclicker	35 pts	Check iclicker section			
OWL Homework	115 pts	Two deadlines each week. Check OWL for deadlines			
Lab	110 pts				
PLTL program	10 points Extra credit for attendance of all the sessions	Check PLTL section			
Total	660 pts				

*There will be a couple of sessions on the same day for each eExam to accommodate anyone with an exam conflict. The first session starts at 6 pm.

*I can't give you the final exam before the date that is listed on Spire. Please don't leave the campus before the end of the final exams week.

Section 7: Lectures Engagement (iclicker 2)

It is pivotal for your success in this course to keep up with the lectures by attending the class, be active by engaging with your peers during the iclicker questions and work through those problems, solve them and discuss them with your peers. Also, it will be beneficial for you to download the non-inked lecture slides (posted on Moodle) and use them during the lecture. We are going to use the iclicker 2 system to reach those goals.

You can buy iclicker 2 through eCampus. **I will start grading the iclicker responses for credit beginning on September 13.** Please bring your iclicker to class beginning from the first day of class if you have it. You may not share your iclicker with anyone in your section of the course (Read academic honesty section in the syllabus).

It is your responsibility to make sure you have your i-clicker every lecture. You will not receive credit for the day if you do not have it. Since we are using the iclicker as part of the learning process to help you learn, I will grade the iclicker for participation not for the correct answer. You would receive the full point for the iclicker, if you answered all the iclicker questions you are asked during that lecture.

Since we are in a pandemic and some of us might need to quarantine or not attend lectures due to COVID-19 related issues, I will drop your five lowest i-clicker scores. If you miss class for any reason including illness, or family emergency, it will be considered one of the five absences and will be automatically dropped. Each score corresponds to a lecture that you might miss.

No excused absences beyond this will be given unless you provide me with a documented reason (doctor's note, hospital note, jury duty.....)

The technical part of iclicker2

- You must register the I.D. of your clicker correctly in Moodle to receive credit for your in-class work.
- You must attend the class/section in which you are enrolled to receive iclicker credit.
- In the case of experiencing any problem, you must report to me promptly. Failure to do this will result in a reduced grade.

Section 8: Lectures Recordings

I will be recording my screen/voice for each lecture and upload that to the Echo 360 of the course. I am providing you with the recordings as a supplement resource if you like to review the lecture or part of it.

You must attend the classes in ISB 135 because this is an in-person course. Also, it is in your best interest to participate in each lecture and engage with your peers, learn the material, and receive participation points.

In case you are sick, or you are asked not to attend lectures due to COVID-19 related issues, you can use these recordings to learn the material and not fall behind. The link to the recordings is available in the "General Section" of the course on Moodle.

Section 9: Electronic Homework System (OWL)

➤ Types of homework:

There are two types of homework (both on OWL) in this class. The in-chapter mastery (MAS) OWL homework of each chapter. Those include questions that will help you master

the basic concepts and reactions. Check OWL for the exact deadlines for the in-chapter mastery (MAS) OWLs that are **required (R)** and will affect your grade.

The second type of homework (also on OWL) is the EOC/Review (end of the chapter) that is **optional (O)** and will not affect your grade. These are more challenging than the mastery ones and they require connecting the dots. You will have unlimited attempts for both in-chapter and EOC OWL questions. I encourage you to solve the EOC as an additional resource to practice and solve problems.

➤ **How does it work?**

- You may repeat each assignment as often as you like.
- You will get new questions/compounds each time. This is an excellent way to practice concepts and prepare for an exam.
- For effective practice, make sure to work out the problem on paper, then put the answer(s) on OWL and check the answer. It is ineffective to check the answer without you working out the problem yourself. Learning chemistry is like learning swimming or driving; you must do the problems yourself instead of just checking the answers.

➤ **Homework extensions**

I understand that sometimes you might miss an H.W. deadline due to an acceptable reason (illness, jury duty...), heavy load academic workweek, or COVID-19 related issues. Since the H.W. is a critical part for you to apply the concepts and solidify your understanding, you are given the opportunity to take advantage of **four deadline** extensions for **mastery OWL H.W.** The extension applies to all the in-chapter mastery included in that deadline. For example, if you missed the deadline for Ch 1, you could have an extension for all the in-chapter mastery assignments of that chapter. **The last day you can use the extension is the day of the exam in which the chapter of the H.W. you missed is included.** For example, if you missed a deadline for Ch 1 H.W. that is included in exam 1, the last day you can use the extension is the day of exam 1 (Oct 11 at 5:00 pm EST), in which Ch 1 is included.

If you miss the deadline for one of the mastery H.W., click on "**past assignment**" and finish the H.W. after the deadline. I will grade that for full credit at the end of the semester. There is no need to let me know; I will figure it out on OWL. It is up to you to keep track if you have used more than four deadlines.

Section 10: Time Conflict and Makeup Exams

- If you have a conflict with an exam time due to military service, religious observance, varsity sports, living in a different time zone, COVID-19 related issues, or another legitimate, **documented reason**, I will work with you to find another time to take the exam. Please inform me and the T.A. about the conflict ASAP by email; it will be great if you can provide me with documented reasons.
- If you miss more than one exam, you should consult with me and then be prepared to see your academic dean about withdrawing from the course.
- In the case of severe illness or emergency, contact the Dean of Students' office. They will get in touch with all of your instructors and help you determine how to complete the semester.

Section 11: Academic Honesty

We want our learning environment to be honest and fair. UMass Amherst has an [Academic Honesty Policy](#) that includes but is not limited to: cheating, fabrication, plagiarism, using someone else's clicker, or bringing more than one clicker to class and facilitating dishonesty. You are expected to know and abide by the Academic Honesty Policy of the campus.

Unauthorized sharing/collaboration on examinations using any means, including social media like GroupMe, constitutes academic dishonesty. Knowing about such sharing and not reporting it also constitutes academic dishonesty and will be reported as such.

Please remember that there is no statute of limitations on academic dishonesty, so if it turns out after grades are reported that there was cheating or knowledge of cheating that was unreported, grades can be changed after the fact.

Section 12: Laboratory

The general chemistry labs will be in person. Check the following link for lab schedule, experiments, lab practice quizzes, and lab T.A. contact information. Read the lab policy and safety information posted on the website before the first lab. Write-ups for each laboratory experiment must be printed from this site and brought to the lab.

<LINK_LAB_INFO>

The lab meets every other week and begins the week of **September 13** for **odd-numbered** sections. Check the lab schedule in the link below for your lab section meetings (listed on Spire/different than course section).

<LINK_LAB_SCHEDULE>




The lab grade constitutes ~17% of the overall course grade. The final laboratory grade tends to be high, ~90%, and thus enhances your overall course score. *Thus, failure to complete ALL the laboratories and the Lab Owls (different than this course OWL) can have a notable impact on your final course.*

- **A quiz will be given each lab period,** including the first lab. Check practice quizzes on the lab website.
- 25% of the lab grade comes from the Lab OWL homework. **The lab OWL assignments are different from the course OWL assignments.**
- If you fail the course, you *must retake* the lab.
- If you received a grade of D or higher, you do not need to repeat the lab.
- See the lab website on how to obtain a lab waiver and for questions about missed labs or quizzes.

Any question about the lab should be directed to your lab T.A. or laboratory supervisor Prof. Thomas Whelan.

Section 13: How to get help?

I care about your success in this course, and I am happy to support you as you pursue your academic goals. There is a range of support and resources to ensure your success in this class.

			Teaching Assistant
I am happy to answer all your questions during my Zoom office hours (check Moodle page). Please come to the Zoom meeting with your questions saved so that you will be able to share your screen with me.	Chemistry tutors through the Learning Resource Center (LRC) can assist you free of charge . https://www.umass.edu/lrc/tutoring.html	Supplemental Instruction (S.I.) sessions (large groups) are informal, a peer-facilitated review that meets regularly. The schedule will be posted on Moodle. https://www.umass.edu/lrc/si.html	The TA will be holding remote office hours (check Moodle for the day and time) to help you in OWL H.W. and other aspects of the course.

Section 14: Peer-led-Team-learning (PLTL) program

The PLTL program is a peer-led team with multiple sessions during which you will collaborate in small groups to solve problems relevant to this class. PLTL will build your social network, help you to study, build communication skills, and even increase your critical thinking skills. If you know all the answers, you can grow in your ability to explain your reasoning. PLTL groups will meet for 1 hour each week in a time that fits your schedule. You will be assigned to groups of 8 students, with one peer leader who will handle organization and keep attendance.

For you to earn the 10 points extra credits, you should do all of the following:

- Attend at least eight sessions over the semester
- Arrive prepared
- Work cooperatively in a group
- Participate with an open mind
- Participate in evaluations of the PLTL program

- Notify the peer leader in advance of any absences
- Refrain from discussing weekly PLTL problems outside of your group until Sunday night.
- The point of the activities is to develop communication skills, learn how to test the reasonableness of your answers, and learn new approaches to solving course-related problems.

Section 15: Course Content and Timeline

The following is a ***tentative schedule*** of how the class will proceed. It is to give you an idea of the pace of the course for you to plan accordingly. The class meets every Tuesday and Thursday in ISB 135.

Week	CHAPTER
6 Sep- 11 Sep	Introduction to the course/ Ch 1 Matter on the atomic scale
12 Sep-18 Sep	Ch 1 Matter on the atomic scale
19 Sep-25 Sep	Ch 2 Elements and Compounds
26 Sep-2 Oct	Ch 3 Stoichiometry
3 Oct-9 Oct	Ch 4 Chemical Reactions and Solution Stoichiometry
11 Oct	Exam 1/ evening exam in ISB 155-160 Gen Chem lab
10 Oct-16 Oct	Ch 6 Electromagnetic Radiation/electronic structure
17 Oct-23 Oct	Ch 6 Electromagnetic Radiation/electronic structure/Ch 7
24 Oct-30 Oct	Ch 8 Covalent bonding/Molecular structure
31 Oct-6 Nov	Ch 8 Covalent bonding/Molecular structure
4 Nov	Exam 2/evening exam in ISB 155-160 Gen Chem lab
7 Nov-13 Nov	Ch 8
11 Nov	Veteran's Day/no class meeting
14 Nov-20 Nov	Ch 9 Theories of chemical bonding/Ch 10
21 Nov-27 Nov	Thanksgiving/No class meeting
28 Nov- 4 Dec	Ch 5 Thermochemistry
2 Dec	Exam 3/evening exam in ISB 155-160 Gen Chem lab
5 Dec-11 Dec	Ch 5
12 Dec	Last day of classes
December 9	Reading day
Check the Spire page for the date of the final exam	Final exam in Gen Chem lab 155-160

Section 16: How to be successful in CHEM 111?

- ✓ If you do not understand something, seek help immediately, do not let it go. Do not let yourself go through cycles of confusion day after day during lectures crossing your fingers that it may magically happen. Help can be obtained from the instructor during office hours and other resources (check "How to get help?" section)
- ✓ Take part of the PLTL program to learn studying skills and solve problems with your peers.

- ✓ Find a "study buddy" or study group. One of the best ways of learning is to discuss it with a peer. For example, meet with your peers through Zoom or in-person to discuss the course content and work on the H.W. together.
- ✓ Read the chapter that will be discussed in the lecture before the lecture.
- ✓ Keep up with the work. Do your homework. A good sign that you are ready for the exam is when you can work the assigned problems without help from the book, friends, and feedback. Use OWL as a learning tool.
- ✓ When you do not know, ask.
- ✓ Read the notes, PowerPoint presentation, and ebook on the same day after you attend the lecture.
- ✓ Try to make it a daily routine to read and solve problems. Take advantage of the optional "Review problems" and "Challenging problems" on OWL for additional practice of the concepts.

Section 17: Class Etiquette and Rules

- The class is an electronic-free zone for you as a student. Turn off your cell phone, pager, iPad, and laptop.
- You should come to class because chemistry is like learning a language; the more you practice, the better you are going to be.
- I expect you to keep up in a professional manner.
- In case you need to leave earlier before the class is over (although not recommended), please sit in the last row in the aisle and leave quietly. Other than this case, this will be considered a disruptive action.
- I have a **zero-tolerance policy** for any action that violates the academic honesty policy. Violation of this policy may result in a failing grade in this course.