

OSU E-Campus CH 231 - Fall 2020

Instructor:

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Graduate Teaching Assistant:

TBA

CH 231, 232, 233: A general chemistry sequence taught for students majoring in most sciences, pharmacy, and chemical, biological, and environmental engineering. CH 231 is a lecture course; CH 261 is the laboratory component. CH 261 may be taken simultaneously with, or following completion of, CH 231.

Prerequisites: MTH 111*, 112*, 251*, 251H*, 252*, 252H*, 254*, 254H* or minimum score of 060 in Math Placement – ALEKS.

*May be taken concurrently

A minimum grade of C- is required in MTH 111, MTH 112, MTH 251, MTH 251H, MTH 252, MTH 252H, MTH 254, and MTH 254H.

CH 231, CH 232, CH 233 must be taken in order.

Time Requirements: It is expected that students will spend approximately 3 hours /week reading the materials posted on Canvas (lecture notes, worked examples, videos, etc.) and an additional 9-12 hours/week reading the textbook, studying the material covered in the lecture notes, and working on the Mastering Chemistry assignments.

Textbook: Tro, *Chemistry Structure and Properties*, 2 ed., Pearson Education, 2018. ISBN: 0-134-29393-2
(Required)

Modified Mastering Chemistry Access Code, Pearson Education. (Required)

Solutions Manual to accompany *Chemistry Structure and Properties* (Optional)

Course Topics:

Chapter E: Essentials: Units, Measurement, and Problem Solving

Chapter 2: The Quantum-Mechanical Model of the Atom

Chapter 3: Periodic Properties of the Elements

Chapter 4: Molecules and Compounds

Chapter 5: Chemical Bonding I

Chapter 6: Chemical Bonding II

Chapter 7: Chemical Reactions and Chemical Quantities

Chapter 8: Introduction to Solutions and Aqueous Reactions

A detailed course schedule is available on the Canvas site and is subject to change. It will be updated online, and students will be notified if it is adjusted.

Successful completion of CH 231 AND CH 261 partially fulfills OSU's Baccalaureate Core course requirements in the Perspectives category under Physical Science (Lab).

Physical Science Baccalaureate Core Rationale: Science seeks to develop a fundamental description and understanding of the natural world, from elementary particles to the cosmos, including the realm of living systems. Students should have the opportunity to explore the insights of science, to view science as a human achievement, and to participate in scientific inquiry. This experience includes the challenge of drawing conclusions based on observation, analysis, and synthesis.

This course is dedicated to helping you achieve the following general education learning outcomes, which include development of generalizable critical thinking skills.

- Recognize and apply concepts and theories of basic physical sciences
- Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis
- Demonstrate connections with other subject areas

Student Learning Outcomes:

The successful student will:

1) Demonstrate mastery of basic chemical concepts and principles covered in this course as measured by performance on exams.

a) Quantum mechanics

- Be able to explain the significance of the historically important experiments such as Rutherford's gold foil experiment and Millikan's oil drop experiment
 - Be able to explain how and why phenomena such as the photoelectric effect and the "UV catastrophe" were important in the historical evolution of quantum mechanics
 - Be able to use the products of quantum mechanics, such as quantum numbers and quantized energy levels, to describe the structure of atoms and their behavior.
- b) The periodic table and electronic structure
- Be able to explain the relationship between the structure of the periodic table and electron configurations
 - Be able to explain the relationship between electronic structure and properties such as atomic size, ionization energies, electron affinities, and electronegativity
 - Be able to explain the relationship between electronic structure of atoms and chemical reactivity

c) Chemical bonding

- Be able to compare and contrast the three bonding theories discussed in class
- Be able to determine molecular shapes, and the presence or absence of molecular dipoles

d) Stoichiometry and chemical reactions

- Be able to identify reactions according to type: precipitation, acid/base, oxidation reduction
- Given the reactants be able to predict the products of precipitation reactions and acid/base reactions
- Be able to do stoichiometric calculations

2) Demonstrate the ability to think scientifically and critically as measured by performance on exam questions requiring written explanations

3) Demonstrate problem-solving skills applicable to a wide variety of problems drawn from the topics covered in this course, as measured by performance on exams.

4) Be able to explain how and why scientific theories have changed over the years, as measured by performance on short answer exam questions.

For chapter-specific learning outcomes, refer to the course Canvas site.

Attendance:

There is no required synchronous class component to the course. There will be an optional synchronous Zoom weekly review session, which will be scheduled after the course begins. However, keep in mind that the analogous activity to attending a regular class is watching the online lecture videos. Make sure that you watch them, and that as you watch, you're taking notes like you would in a regular class!

Illness:

If you become ill for a prolonged period or have to care for a sick loved one, please let your instructor know **in advance** if you need to miss homework, a quiz, etc. We will work out accommodations on a case-by-case basis. However, remembering that you were sick weeks after a missed assignment will not be accepted as an excuse.

Course Components:

Homework: Mastering Chemistry

- Modified Mastering Chemistry is the on-line homework system that we use in CH 231, 232, 233. Directions for purchasing a Modified Mastering Chemistry Access Code and registering for Mastering Chemistry can be found on the CH 231 Canvas site under Modules.
- At the end of the term, all students who earn at least 85% (we will not round up from 84.9 %) of the total assigned points on Mastering Chemistry will receive full credit for Mastering Chemistry (70/70 points). Students earning less than 85% of the assigned points will receive that percentage of the 70 points possible (e.g. a student who earns 80% of the assigned points will receive 56/70). The score on any particular assignment does not need to be 85% or better, only the final total at the end of the term. So this means that you can "make up" for a low score on one assignment (or missing assignment!) by doing very well on another assignment.
- A link to Mastering Chemistry, "*MyLab and Mastering*", can be found on the CH 231 Canvas site navigation list (left-hand side of CH 231 homepage). This is where you will access Mastering Chemistry to work on the assignments. **Most Mastering assignments are due on Fridays at 11:59 pm Pacific Time, but be sure to check the Mastering Chemistry site to confirm due dates. Late assignments will not be accepted. * Start your homework early!**** If your internet goes out, etc, that is not a valid excuse for not being able to turn in your homework on time, since you started your homework at the last minute.

Study Aids:

Study aids include learning objectives, videos, worksheets, etc.

- *Learning Objectives* can also be thought of as a Study Guide. They list the things you should understand and be able to do when you complete the chapter.
- *Video modules* provide short video tutorials or demos on numerous topics. We cannot anticipate or solve all technical access issues, as local computer configurations and internet access vary greatly. If you have trouble viewing the videos, here are a few tips that may help: (1) Paste the video link directly in your browser address bar rather than opening the access page inside of the Canvas window. (2) Be sure that you have upgraded to the most recent version of the browser software you are using.
- *Practice worksheets and example problems* are available and are keyed.
- Study aids (study guides, practice worksheets, video modules) are important tools to help you understand the material in the course, but will not be collected or graded.

Discussion Boards:

- For participation in this course, you are required to make one discussion post every week (although more is great, too!). That can be a question on a chapter discussion board (not the general FAQ board), answering another student's question on a discussion board, or participating in the discussion of the week board. Posts are due by Friday at 11:59 pm, and the new discussion/topic of the week board will be posted on Sunday nights.
- Note that your score in Canvas will NOT be immediate, since there is not a way to automate this in Canvas. We will strive to have the discussion board grades updated by a week after the due date.

Assessments:

Weekly Quizzes –

- 40 minute, ~10 question quizzes.
- Focused on concepts from the previous seven days, but with a few comprehensive questions as well.
- These quizzes are due on Friday nights at 11:59 pm Pacific Time.
- Your lowest weekly quiz score will be automatically dropped.
- These quizzes are open-book and not proctored.
- Weekly Quizzes are open-book. However, you will NOT have enough time to learn things as you go. From experience we have seen that students generally do worse on open-book quizzes and exams because they think they will be easier and therefore do not study the material adequately. We recommend making a quick-reference study sheet or note card of important equations and/or concepts as you study. BEWARE: if you use a study sheet from another student, you probably won't understand what they wrote, it will likely not be helpful, and if they made any errors, it will be harmful.
- Working together: While we discourage students from working together, it is not forbidden. **However**, if we suspect that you have been having someone else complete your quiz or part of your quiz for you, or that you have been copying from another student, *additional restrictions (via proctoring) will be placed on your future quizzes*. Note that most quiz questions are unique to a particular student. We do not believe students would benefit from working together.

Quests –

- 60 minutes, 15-20 questions
- Longer than a typical quiz, but not quite a “Test”, quests will draw from all the concepts learned up to that point, with a slight emphasis on the material from the last two weeks.
- There will be four equally weighted quests at the beginning of weeks 3, 5, 7, and 9.
- These will be available from Sunday at 12:05 am Pacific Time (note-this is just after Friday at midnight!) until Monday at 11:55 pm Pacific Time.
- Proctored via Proctorio (see more below)
- **You cannot drop a Quest score!**

Final Exam—

- 110 minutes, 20-25 questions
- Cumulative over the entire term
- Available Monday December 7, 12:05 am Pacific Time (note- just after Sunday at midnight!) until Tuesday December 8, 11:55 pm Pacific Time.
- Proctored via Proctorio (see more below)

Proctored assessments (Quests and Final Exam)—

- **Quests/Final Exam will be Proctored through Proctorio.**
- You **MUST** have a web-cam to use the Proctorio proctoring.
- Allowed materials:
 - A scientific calculator (programmable calculators, graphing calculators, and cell phone-based calculators will **not** be allowed)
 - An exam cover sheet will be compiled by the class and instructor. You can then access the document on-line during your quest.
 - Periodic Table. Because who could possibly do chemistry without it?! This will be available online as well.
 - Because we are using automated proctoring, you will need to use a white-board and dry-erase pen with eraser to work out problems, not scratch paper.
 - Any use of materials not on this list (including websites or other online resources) will result in a non-replaceable score of 0 on the assessment, and will be reported to Student Conduct as an incident of academic dishonesty.
- The assessment time window is intended to accommodate a range of student schedules and time zones. Please take your quest as early as possible in this window to allow yourself time to address any technical or proctoring issues that might arise.
- For the duration of the assessment time window, students may not communicate contents of the quest or answers to any other individual in any format. Students also may not receive such information prior to taking their quest. Any violations of this will be reported to Student Conduct and result in grade penalties.
- If there is a suspicion that you have cheated on a proctored assessment, further proctoring requirements will be added to your future assessments.
- A missed assessment will receive a score of zero.

Policies for both weekly quizzes *and* quests, as well as the Final Exam:

- Chegg or other similar “homework help” websites: I have a strict NO CHEGG (or other similar sites) policy. When you send someone your quiz question and they send you an answer, that is cheating. Last spring, we became pretty good at finding quiz questions on Chegg and figuring out who posted them. If it is concluded that you posted a question on Chegg, you will receive a zero on the assignment, and you will not be allowed to drop that score. Additionally, you will have an Academic Dishonesty report on file with the University. Please note, I have been informed that often, medical schools, etc. will specifically ask OSU whether a student has a report on file. If you have had more than one infraction, further actions will be pursued, in cooperation with the Office of Student Conduct.
- These assessments are timed, and you will only have access to one question at a time. After you submit the answer to a question, you will not be able to go back and change your answer. I KNOW that this goes against usual test-taking strategies. However, this is the only way to ensure quiz integrity, and after multiple data points, we have found that average quiz scores did NOT go down when this policy was implemented. (In fact, averages have been the same or gone up!).
- You are responsible for being careful about the security of your Canvas account. Do not give other students your password, leave your computer open in public areas, etc. If you believe your account has been compromised or may have been compromised, please contact Canvas help ASAP to get the issue addressed.
- You are not allowed to use a VPN in completion of your coursework or assessments.
- You may occasionally be expected to submit your work for a few problems on an assessment. This will be done using Gradescope.

Components of Course Grade - Tentative

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|-------------------------------|---|
| Intro. Activities | |
| Syllabus Quiz | 5 pts |
| Mole Hole | 5 pts |
| Gradescope | 5 pts |
| Quests | 200 pts (4 quests, 50 points each) |
| Final Exam | 75 pts |
| Weekly Quizzes | 90 pts (10 quizzes, 10 points each, 1 drop) |
| Mastering Chemistry | 70 pts |
| <u>Discussion Board Posts</u> | <u>50 pts</u> |
| Total | 500 pts |

Final Course grades

| | |
|----|----------------|
| A | 92% and higher |
| A- | 89-91% |
| B+ | 86-88% |
| B | 82-85% |
| B- | 79-81% |
| C+ | 76-78% |
| C | 72-75% |
| C- | 69-71% |
| D+ | 66-68% |
| D | 62-65% |

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|----|-------------|
| D- | 59-61% |
| F | 58% or less |

Completion of Work

- Students are expected to be aware of all due dates as published in this syllabus, and complete work in a timely fashion. Late quizzes and exams are not accepted; late homework and labs may be completed for partial credit as outlined in the homework section below.
- Students are expected to complete their own work as described in each portion of the 'Course Components' section of this syllabus.
- Students must not attempt to mask their location in completion of coursework. As such, students may not access the course website(s) through a VPN when completing any assessed course work without express instructor permission. Accessing any assessed course work using a VPN may result in a score of zero on that coursework and a report to Student Conduct and Community Standards as an incidence of academic dishonesty.

Communication

- Students are encouraged to communicate with the instructors and teaching assistants as often as questions on the material arise. Please review the Emails Guidelines document for this course.
- Students are expected to regularly check email for communications from their instructors. Students should check their OSU email account daily, or configure their account to forward to an email account that will be regularly checked.
- Course announcements will be posted at least weekly. Students should either configure Canvas to receive ASAP (or daily) notification of new announcements, or should plan on checking the announcements for the course early each week.
- On a related note, please do not use the messaging system in Canvas, it is clunky and does not contain a running record of any previous emails on the topic. Please use your OSU email account and email us directly from there. If you send an email from a non-OSU account, we may not be able to reply with an answer to your question. Any and all information pertaining to your protected educational records can only be sent to your OSU email address. It's really best to always use your OSU email account. Please also be sure to include reference to which course you are in when emailing your instructor, as well as the fact that you're in the ECampus section.

Questions? Need Chemistry Help?

There are LOTS of ways to get your questions answered and the help you need! Please take advantage of them early and often!

Canvas Discussion Boards: There will be a Canvas discussion board for each chapter. If you have a specific question about a homework problem, or a topic, feel free to ask there! Feel free to answer other students' questions! Instructors will also regularly monitor the discussion boards and post answers. Also, this is a good place to read through other student's questions to make sure that you're understanding things.

Mole Hole: This is the TA-facilitated chemistry help! The Mole Hole will be facilitated via Slack. There will be more information at the end of Week 1/beginning of Week 2. You can also find links/instructions on the Canvas site.

Office Hours: The instructor and TA will hold office hours via Zoom. Times and links will be available in Canvas.

Email/Slack: You can also feel free to email me (Cassandra.siler@oregonstate.edu) or send a direct message on Slack. Please keep in mind that I don't work a regular work-day schedule (I have young kids doing remote schooling at home because of COVID-19), so while I will try to respond quickly, it won't always be immediate.

Technical Aspects

- As an online course, it is the student's responsibility to have access to adequate computing resources to utilize course materials and complete course work.
- Multiple websites are used in completion of course materials. These sites may require students to download (free) plug-ins or otherwise configure their computer in order to function. Students should plan on accessing and configuring these sites as early as possible to allow time to seek technical support if necessary.
- Technical issues are not considered a valid reason for missing due dates/times. If you do have technical issues, please report the issue to both the relevant site's technical support and to the instructor as soon as possible. Please be as specific as possible when describing the issue, including the text of any error messages and screen captures when appropriate.

Incompletes

Incomplete (I) grades will be granted only in emergency cases. Incompletes can only be granted to students who are passing the course at the time the incomplete is granted, so if you have a circumstance that has arisen that might prevent you from completing the coursework, please don't wait; let us know right away so that we can discuss the options available to you.

Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct> (<https://beav.es/codeofconduct/>)). Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

Guidelines for a Productive and Effective Online Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please review the discussion board guidelines posted in Canvas, and bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Academic Integrity

Integrity is a character-driven commitment to honesty, doing what is right, and guiding others to do what is right. Oregon State University Ecampus students and faculty have a responsibility to act with integrity in all of our educational work, and that integrity enables this community of learners to interact in the spirit of trust, honesty, and fairness across the globe.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

It is important that you understand what student actions are defined as academic misconduct at Oregon State University. The OSU Libraries offer a tutorial on academic misconduct (<https://guides.library.oregonstate.edu/c.php?g=286121&p=3896378>), and you can also refer to the OSU Student Code of Conduct (<https://beav.es/codeofconduct/>) and the Office of Student Conduct and Community Standard's website (<https://studentlife.oregonstate.edu/studentconduct/student-info/>) for more information. More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

Technical Assistance

If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the IS Service Desk (<https://oregonstate.teamdynamix.com/TDClient/1935/Portal/Requests/ServiceDet?ID=22911/>) online.

Inclusivity

In an ideal world, science would be objective. However, science is a human endeavor and is historically built on a small subset of privileged voices. We acknowledge that it is possible that there may be both overt and covert biases in the material due to the lens with which it was written, even though the material is primarily of a scientific nature. Integrating a diverse set of experiences is important for a more comprehensive understanding of science. Please contact us if you have any suggestions to improve the quality of the course materials.

We (like many people) are still in the process of learning about diverse perspectives and identities. If something was communicated in the class (by anyone) that made you feel uncomfortable, please talk to us about it. As a participant in course discussions, you should also strive to honor the diversity of your classmates. Furthermore, we would like to create a learning environment for our students that supports a diversity of thoughts, perspectives, and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.). To help accomplish this:

- **Pronouns:** If you have a name and/or set of pronouns that differ from those that appear in your official records, please let us know!
- **Religious Observances:** Please let your instructor know if your class deadlines interfere with any of your religious and/or spiritual practices so that we can make necessary arrangements.

- **Statement of Accessibility:** All students have the right to learn from and participate in the classroom. We designed this course with accessibility in mind, and are always open to hearing ways to make it more inclusive and accessible. Please contact your instructor if you have accessibility concerns.

Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Accessibility of course materials

All materials used in this course strive to be fully accessible. Since some materials and resources are provided by external vendors, the accessibility statements from those vendors is also provided. If you require accommodations, please contact Disability Access Services (DAS).

Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities. Please also review the accessibility statements from OpenStax (<https://openstax.org/accessibility-statement/>), Knewton Alta (<https://www.knewton.com/accessibility/>), and SmartSparrow (<https://www.smartsparrow.com/solutions/highered/>).

Ecampus Reach Out for Success

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success.

Ecampus students are always encouraged to discuss issues that impact your academic success with the Ecampus Success Team. Email ecampus.success@oregonstate.edu to identify strategies and resources that can support you in your educational goals.

If you feel comfortable sharing how a hardship may impact your performance in this course, please reach out to me as your instructor.

For mental health

Learn about counseling and psychological resources for Ecampus students. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

For financial hardship

Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (studentassistance@oregonstate.edu or 541-737-8748).

Life outside the classroom

We have tried to account for the fact that your life outside the classroom may impact your participation at times in course design. Regardless of these built-in safety guards, if you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to communicate with your instructor. We want to be a resource for you. If you prefer to speak with someone outside of the course, the Dean of Student Life is an excellent resource.

Student Evaluation of Courses

During Fall, Winter, and Spring term, the online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the hybrid learning experience for future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.

Please Note

This syllabus is subject to change with notice from the instructor. The syllabus can also be accessed through Canvas (<http://oregonstate.instructure.com>) at the start of term.