



UW IN THE HIGH SCHOOL
UNIVERSITY *of* WASHINGTON

UW Chem 110: Preparation for General Chemistry

UW Credits: 5 **HS Credits:** 1

UW Quarter for Registration: Fall/Winter **Course Dates:** 9/9/2026 to 6/4/2027

High School: Auburn Mountainview High School

Instructor: Mr. Steffin

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Course Resource Website: www.steffin.us, Google classroom

Course Description

UWHS Chem 110 is an introduction to general chemistry with an emphasis on developing problem-solving skills. The course covers basic concepts of chemistry along with the mathematics required for quantitative problem solving. For students without high school chemistry or with limited mathematics background. Successful completion of CHEM 110 prepares students to enroll in CHEM 142 while also fulfilling the general education requirement for (NW) The Natural World at the University of Washington.

Course Materials

- Zumdahl, Steven S., Chemistry – AP Edition, (PDF on google classroom)
- Scientific Calculator
- ALEKS subscription (\$35 fee paid by the district)
- Composition Book,

Learning Objectives

At the end of this course, students will be able to:

- **Describe** matter qualitatively at the microscopic and macroscopic levels.
- **Predict** microscopic quantities given macroscopic data, and vice versa.
- **Predict** the types and amounts of products of common chemical reactions.
- **Analyze** a complex problem using chemical principles, **discriminate** between useful and unuseful information within the context of the problem, **design** a solution path, and **present** the result with appropriate descriptors.
- **Evaluate** whether the result of a calculation makes sense, **analyze** sources of error in the approach (i.e., arithmetic, logical, or conceptual) and **redesign** the solution path to achieve an accurate result.

Course Topics and Assignments

Measurement/ Scientific Communication/ Foundations of Science PPTS: 1,1.1, 1.2, 1.3 6 Weeks	- Scientific Notation - Measurement and significant figures - Systems of Units: English, Metric, SI - Converting Units and Dimensional Analysis - Temperature Units and Conversions: °C, °F, K - States of Matter: gas, liquid, solid - Classification of Matter: element, compound, mixture - Chemical vs. Physical Change - Density - Ions vs. Atoms - The Periodic Table: period vs. group; metals, nonmetals, and metalloids; reactivity trends
Atomic and Chemical Representations PPTS: 2.1, 2.2, 2.3 11 Weeks	- Valence Electron Structure of Atoms and Ions - Basic Lewis Structures: Octet Rule only - Predicting shapes with VSEPR - Kinetic Molecular Theory - Molecular Polarity and Intermolecular Forces - Introduction Periodic Table: period vs. group; metals, nonmetals, and metalloids; reactivity trends - Introduction to Ionic vs. Covalent Bonding - Basic differences between Ionic and Molecular compounds - Basic Inorganic Nomenclature - Polyatomic Ions: composition and names of common species
Connecting the Micro & Macroscopic PPT: 3.1 3 Weeks	- The Mole and Molar Mass as a conversion between the Macroscopic and Particulate pictures - Molecular/Empirical Formulas % Yield
Chemical Change and Reaction Classes PPTS: 3.2, 3.21, 4.1, 4.2 7 Weeks	- Evidence of Chemical Reaction: precipitate or gas formed, temperature change - Reaction Classes: Precipitation, Acid-Base (Proton-Transfer), Redox (Electron Transfer), Combustion, Single- and Double-Replacement, Synthesis, Decomposition - Solubility Trends - Stoichiometry and Limiting Reactants - Actual Yield vs. Theoretical Yield; Percent Yield
Thermochemistry and Gas Laws PPTS: 5, 5.5 7 Weeks	- Concentration Units-Molarity - Acid-Base Theories: Arrhenius, Bronsted-Lowry - Common Strong Acids and Bases - System vs. Surroundings; Exo- and Endothermic; $q = cm\Delta T$ - Definition of enthalpy - Calorimetry - Driving Force for Chemical Reaction: decrease in energy, increase in entropy

Classroom Expectations

- Be on time, Be engaged, Be prepared!
- Classroom courtesy and respect makes for a productive classroom. When someone is speaking in the class, respectful listening is expected.
- Absent students should access the Daily Plan on Google Classroom to see what was missed
- Cell phones and any Bluetooth listening devices will be put away during class. The School wide cell phone policy will be enforced.
- Follow all AMHS policies

Course Grading

Category/weight	Components
20%- Summative Assessment	Unit Tests 100 pts, Quizzes 25 pts (No Retakes)
35%- Formative Assessment	Activities (Assigned in Google Classroom), In-Class Work (Summaries, STEM movies), Participation (Late work will not be accepted after the next chapter/unit test)
20%- ALEKS*	Online computer practice required by UW
25%- Labs	Individually turned in (must be present on lab days)

**Students enrolled in Chemistry 110 for high school credit, need to complete 70% of ALEKS to pass the high school course.*

Summative Assessments: Mid-Term and Final Exam assessments are cumulative.

ALEKS: This course uses the internet-based learning program ALEKS (Assessment and LEarning in Knowledge Spaces). In ALEKS, you will work to master topics relevant to the various units of course content. ALEKS will present you with a series of problems that explore a particular topic. The problems will have enough variability that you will only be able to get them consistently correct by understanding the core principle or skill defining the topic. A portion of your **ALEKS** grade is constructed from the scores on your assigned objectives (group of topics) and the rest is from the percent of the pie you complete. The more of the pie you complete, the higher your ALEKS score will be. **You do not have to complete the entire pie to earn credit for ALEKS, but there are minimum % mastery scores required for specific course grades.** Similarly, you do not have to complete all the topics assigned in an Objective to earn credit for the Objective; whatever percentage of topics you complete by the due date will be your score for that Objective.

Note: Minimum ALEKS mastery/pie progress scores for the UW ALEKS Core are tied to the course grades: A *minimum* ALEKS score of 70% is required to earn a course grade of 1.7-2.4, 80% for grades 2.5-3.4, and 90% for grades 3.5-4.0. E.g., if a student earns a course score of 2.7 and an ALEKS score of 77%, their grade will be 2.4.

Note: A minimum course grade of 1.7 in Chem 110 will be required for automatic entry into Chem 142 on the UW Seattle Campus. Students not earning a 1.7 will need to pass the UW Seattle General Chemistry Placement Exam to gain entry into Chem 142.

About US in the High School (UWHS)

Since 1981, through UW in the High School (UWHS), the University of Washington has partnered with high schools across Washington state to offer UW courses for UW credit in the high school classroom. Courses are official UW courses, taught by the high school's own teachers, who have been approved and trained by UW faculty. Students in the UW course have the option to register and earn UW credit and will receive from the teacher a UW HS registration form and fact sheet, with all registration details and the deadline. <https://www.uwhs.uw.edu/>

UW Academic Honesty Policy

Students registered for UW credit through UWHS are expected to adhere to the University's standards of academic honesty. This requires that students clarify assignments and procedures with their teachers, study diligently and seek help when they need it. Any suspected misconduct will be determined in collaboration with the appropriate UW academic unit and high school.

UW Disability Accommodations

For students registering for UW credit, any accommodations approved at your high school must also be approved for your UW courses by UW Disability Services Office. They can be contacted at dso@uw.edu, 206-543-6450 (voice) or 206-685-7264 (fax). Students, parents, or school staff can submit documentation (504 plan, IEP, or similar, as well as supporting documentation that outlines the diagnosis from an appropriate professional). The email/fax should also include the name and contact information for the most appropriate high school administrator (e.g., teacher, counselor, etc.). Once the DSO staff has reviewed and approved the documentation, they will include the administrator in their confirmation email.

UW Grades

You will earn both a high school grade and a UW grade for this course. The UW grade you receive will follow UW grade policies and might be different from the high school grade. Your final UW grade is recorded on your UW transcript, which is an official record of your UW coursework, grades, and credits. After the course is over, the teacher submits the UW grades to UW. Until that time, your UW transcript will show the UW course along with the grade of "X", which is a placeholder until the final UW grade is recorded. To confirm your UW grade, you can view your grades online through MyUW (which requires you to set up your UW NetID), order an official UW transcript, or ask your teacher. Grades cannot be mailed or provided over the phone.

Dropping a UW Course

If you registered to earn UW credit and find you're unable to complete your UW course or aren't doing well in the course, you can choose to be dropped. Dropping a course means you are no longer enrolled in the UW course and will not receive a UW grade or credit. You are, however, still enrolled in your high school course and will receive a high school grade and credit, unless you also withdraw from the class at the high school. Whether you are enrolled in a single UW course or more, you can request to be dropped from one course, some courses, or all courses. The deadline for requesting this drop is the last day of instruction noted at the top of this syllabus. If the course ends sooner than that date and/or a final UW grade is calculated by the teacher, then the UW course has ended and it is too late for students to drop. Details for dropping a course are on the UWHS website.