Choosing Introductory Courses

The Department of Chemistry offers five initial courses in introductory chemistry: CHEM 110, CHEM 120, CHEM 142, CHEM 143, and CHEM 145. The following information can be used a guide to assist you in choosing the appropriate introductory chemistry course.

Depending on your circumstances, the choice between these introductory courses can be straightforward, or it may call for some additional information. Answers to frequently asked questions can be found at the bottom of the page.

CHEM 110 - Preparation for General Chemistry

CHEM 110 is a preparation course for our general chemistry series. It is intended for students who have not had high school chemistry, or who feel that they need a review before entering CHEM 142. The course is offered for 3 credits without a lab component by the UW Seattle campus as an in-person and online course. To enroll students must first take the free online General Chemistry Placement Exam.

This course is also offered through the UW in the High School program with a lab component for 5 credits or without labs for 3 credits.

CHEM 120 - Principles of Chemistry 1

CHEM 120 is an introduction to general chemistry, and is the first course in the General (CHEM 120), Organic (CHEM 220), and Biochemistry (CHEM 221) sequence. This sequence is intended for students planning to pursue majors in the allied health fields such as nursing and other selected science majors. To enroll students must first take the free online General Chemistry Placement Exam.

Only 6 credits are allowed for courses from CHEM 120, CHEM 142, and CHEM 143, if more than one of these courses are taken.

CHEM 142 - General Chemistry

CHEM 142 is the first of a three course “General Chemistry” sequence (CHEM 142, CHEM 152, CHEM 162). This sequence provides an introduction to a variety of chemical concepts without using calculus, and is appropriate for students interested in science and engineering majors as well as pre-med. The sequence requires a good working knowledge of algebra but does not use calculus. CHEM 142 is open to students who score a 1 or higher on the AP Chemistry test; those who have completed CHEM 110 or an equivalent course; or those who have passed the free online General Chemistry Placement Exam.

CHEM 143 - Accelerated General Chemistry

CHEM 143 is the first of a two course “Accelerated General Chemistry” sequence (CHEM 143, CHEM 153). The course content is an accelerated version of CHEM 142, 152, 162 with an expectation that the topics of stoichiometry and gas laws have been mastered before enrolling in CHEM 143. This sequence requires good working knowledge of algebra but does not use calculus. The sequence is appropriate for pre-med as well as science and engineering majors with a solid mathematics and chemistry background. CHEM 143 is open to students with a score of 1 or higher on the AP Chemistry test; those who have completed CHEM 110 or an equivalent course; or those who have passed the General Chemistry Placement Exam.
CHEM 145 - Honors General Chemistry

**CHEM 145** is the first course in the “Honors General Chemistry” sequence (CHEM 145, CHEM 155, CHEM 165). This sequence covers more advanced topics than in the 142 or 143 sequences and is designed for students who are curious about science and enjoy learning deeply. The courses introduce students to the scientific literature and include advanced laboratory exercises. Courses require the use of calculus in derivations and problem solving. CHEM 145 is open to students with a score of 3, 4 or 5 on the AP Chemistry test; a 4, 5, 6, or 7 on the High Level Chemistry IB exam; or those who have passed the general chemistry honors placement test offered by the UW Office of Educational Assessment. Students receiving a borderline passing score should consult with the chemistry advisors regarding appropriate placement. View the complete listing of CHEM 145 course information including prerequisites, exam information, source materials, sample exam questions indicating areas and level of knowledge expected on entry.

**Frequently Asked Questions**

Use the FAQ for help choosing the appropriate introductory chemistry course.

**Have you had high school chemistry?**

If **no**, then CHEM 110 is probably the best choice. You will be at a disadvantage if you enroll in CHEM 142 without high school chemistry.

If **yes**, then CHEM 142, 143, or 145 are appropriate introductory courses. If you're uncertain whether the high school course you took was advanced enough, or if you took chemistry sometime ago and you feel that you need a refresher course, then beginning with CHEM 110 may be a good choice. It's better to be well prepared when taking the general chemistry sequence than to rush ahead into a course that is too advanced.

CHEM 120 is not designed to prepare students for CHEM 142, 143, or 145; rather, it is the first course of a three quarter sequence (CHEM 120, 220, & 221) that is for students planning to pursue majors in the allied health fields such as nursing and other selected science majors. Only 6 credits are allowed for courses from CHEM 120, CHEM 142, & CHEM 143 if more than one of these courses are taken. CHEM 120 can not be used for the chemistry or biochemistry majors. If you are uncertain about which course to take you should contact advising.

**What level is your Math Placement?**

Math is the universal language of science and an important component of the chemistry and biochemistry curriculum. At the UW, entering students who do not have college credit for math will need to take the Math Placement test at the Office of Educational Assessment before registering. This test will indicate the math level for which you are eligible to register. The recommended level of math placement for CHEM 120 and CHEM 142 is MATH 120 (pre-calculus). If you placed below MATH 120 and are hesitant about your math skills, it is advisable to delay taking CHEM 120 or CHEM 142 until you are at the level of MATH 120. Ideally, CHEM 142, 152, 162 should be taken concurrently with the calculus sequence, MATH 124, 125, and 126. For Accelerated General Chemistry (CHEM 143) and Honors General Chemistry (CHEM 145), strong math skills are essential. For CHEM 143 the official prerequisites is placement into MATH 124, and CHEM 145 requires MATH 124 which can be taken concurrently.

**What chemistry does your major require?**

Several majors on campus require chemistry as a degree requirement. However, the required sequences vary from major to major. See the Degree Programs website or consult a department advisor for specific information. If you are undecided about a major you should investigate the various degree programs for which you have an interest, and then choose the chemistry sequence that will
meet or exceed the requirements for all, as well as keeping your options open. If you want help in choosing a major talk with the
departmental advisors and/or attend one of the Gateway Center's Undergraduate Advising Office workshops on "How to Choose a
Major", which are offered frequently during the academic year.

What if I'm interested in applying to medical school?
If you plan to pursue medical school or another health science professional field, check the prerequisite requirements for the specific
program to see how it impacts your choice of major. Always take the more comprehensive sequence to keep your options open (that
usually means the CHEM 142 or more advanced sequences).

Many programs' standards of admission are above the stated minimum requirements. For example, although a nursing school
catalog may say that CHEM 120 and 220 are adequate prerequisites for admission, you should check with the advising staff to ensure
that sequence is really the best sequence to remain competitive for admission. If a medical school says you don't need a degree to be
admitted, ask them how many students in the entering class did not have a bachelor's degree. In order to gain admission to the highly
competitive programs in health sciences, you usually have to do more than meet minimum requirements. Again, you will be covering
all your bases by choosing the CHEM 142 or more advanced sequences. Further pre-med, pre-dental, pre-pharmacy information is
available at UW's Pre-Health Advising web page. You can also receive additional information about these pre-professional programs
at The Undergraduate Advising Office, part of the Center for Undergraduate Advising, Diversity & Student Success, in 141 Mary Gates
Hall.

Are you interested in Honors Chemistry?
CHEM 145 is open to students with a score of 3, 4, or 5 on the AP test; or a 4, 5, 6, or 7 on the High Level Chemistry IB exam or those
who have passed the general chemistry honors placement test offered by the UW Educational Assessment Office. Students receiving a
borderline passing score should consult with the chemistry advisors regarding appropriate placement. Students should be aware that
CHEM 145 assumes full mastery of the basic concepts of elementary chemistry so the course will not review this material. The
expectation for math and problem solving proficiency is also high in the honors courses. The CHEM 145 information sheet contains a
complete listing of prerequisites, exam information, source materials, and sample exam questions indicating areas and levels of
knowledge expected on entry.

Are you interested in Accelerated Chemistry?
Chem 143 is open to students with a score of 1 or higher on the AP Chemistry test or those who have passed the Chem 142 Placement
Exam offered by the Office of Educational Assessment. Placement into Math 124 is also required for enrollment. Students should
be aware that CHEM 143 assumes mastery of the basic concepts of stoichiometry and gas laws and will be moving at a faster pace
than CHEM 142. Excellent problem solving and mathematical reasoning skills are required for success in this sequence.

Did you take the Advanced Placement (AP) Test in Chemistry or the IB Higher Level Chemistry Exam?
Students who earned a chemistry AP exam score of 5 receive credit for the general chemistry sequence (CHEM 142, 152 and 162).
Students who earned a chemistry AP exam score of 4 receive credit for the CHEM 142 and 152. Students who earned a chemistry AP
exam score of 3 receive credit for the CHEM 142. However, students who are interested in chemistry or biochemistry as a major
are strongly encouraged to consider honors general chemistry if they meet the pre-requisites. More information about the UW AP
policy is on the UW homepage.

Students who earned a Higher Level Chemistry IB exam score of 7 receive credit for the general chemistry sequence (CHEM 142, 152
and 162). Students who earned a Higher Level Chemistry IB exam score of 6 receive credit for the CHEM 142 and 152. Students who earned a Higher Level Chemistry IB exam score of 5 receive credit for CHEM 142. However, students who are interested in chemistry or biochemistry as a major are strongly encouraged to consider honors general chemistry if they meet the pre-requisites. More information about the UW IB is on the UW homepage.

Do you have Running Start chemistry credit?

If you took college-level chemistry courses in high school as a part of the Running Start Program, you're eligible to continue on with the next level of chemistry. If your credits have been transferred and posted, the UW web registration system will allow you to register for the appropriate courses. More information about Running Start can be found on the UW homepage. If you have questions about your Running Start chemistry credit, consult with a department advisor.

What should you expect in CHEM 142, 143, or 145?

Introductory chemistry courses consists of three or four weekly lectures taught by a professor, one weekly hour-long quiz section taught by a teaching assistant (TA), and three hour labs monitored by the TA. Your TA serves as a link between you and your professor, passing on information and clarifying answers to questions you might have. TAs are also the primary graders of your homework, tests, and lab reports.

Although there may be multiple sections of the course, each section covers the same chapters in the same textbook and the same labs as the other sections. However, the instructor will influence the course through their different teaching styles and emphases placed on different material. Students can learn more about individual professors by going to the Department of Chemistry Faculty Directory. Research interests and publications are included in the short biography of the professor.

The course, including lecture and lab, has a single grade. Attendance at your scheduled lab is mandatory. The graded work is a mix of the values assigned to lab reports, pre-labs, quizzes, and midterm and final exams. The individual instructor will publish their own grading information in his or her section syllabus. Some of these are available in the Course Index.

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